

# New Research Titles from Borderland Sciences

#### THE PATTERN OF HEALTH

A Search for a Greater Understanding of the Life Force in Health and Disease

Aubrey T. Westlake, MD

This classic once again made available to Borderland Researchers. Dr. Westlake introduces the idea that health results from the maintenance of the individual pattern of super-sensory energy, a harmonious interaction of the lower, middle, and higher selves. He also shows that the nominally different vital life forces of Reich, Reichenbach, Eeman, and others are really different descriptive characterisites of one-in-the-same life force.

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E. Reginald Morton, M.D.

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Alfred B. Searle

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This little gem covers all of the key points necessary to comprise a thorough, scholarly work on dowsing. In it Stark touches on the history of both the term and the practice of dowsing, theories behind what is at work and why it works, and methods for refining it as a tool. Methods for detecting subtle energies and determining the relationships between them, health, and environment are also introduced. #80405, 48pp, staples... \$6.95

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Abbé Mermet

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Thomas Coison

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#### The Journal of Borderland Research

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# The Journal **Borderland Research**

Volume LIV, Number 1

First Quarter 1998

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# THE JOURNAL OF BORDERLAND RESEARCH

# **Editorial**

"We have actually touched the Borderland where Matter and Force seem to merge into one another, the shadowy realm between the Known and Unknown...

I venture to think that the greatest scientific problems of the future will find their solution in this Borderland, and even beyond; here, it seems to me, lie Ultimate Realities, subtle, far-reaching, wonderful."

- Sir William Crookes, Radiant Matter, 1879

I don't know if Meade Layne's creation of the name Borderland Sciences Research Foundation came from the above words of Sir William, but the Crookes quote seems to be one of the first instances in which science met the Borderlands in print. It is also one of the more descriptive passages concerning the nature of our work, so I thought it significant to include it as the header of this editorial (it also heads up the index page of our website).

For those of you that subscribe, you know that this is the first issue of the Journal published since the 3rd quarter of 1997. This is mostly due to delays in printing, (we have since changed printers) and the change in format. As you can see we've gone back to the old "Gernsback" cover style (which originated with previous Director of BSRF, Tom Brown) with a few minor changes. There are several reasons for this change which I'll point out here. Our original reasons for going to a full color glossy cover were that we hoped it would generate more subscriptions, thus creating more research capital for the foundation, and also increase the newsstand and bookstore distribution. After 3 years of this experiment there has been virtually no increase in subscriptions, and the newsstand/bookstore distribution, though increased considerably, was a major disappointment. The experiment was a failure. We have since dropped several so-called "newsstand distributors" for the simple reason that it didn't pay to send them magazines. Recently, Jim Martin of Flatland magazine did the same thing. In the latest issue of Flatland, Jim states, "I can't afford to print thousands of extra copies and mail them to the Big Shredder in Mall-Land." This is precisely what has happened with Borderlands...we printed thousands of extra copies that were sent to newsstand distribu-

tors and yielded far less than a break-even return. What has happened is that instead of returning unsold magazines to us, most distributors now require that they only have to send affidavits for those magazines not sold or they refuse to carry the magazine at all. They then assure us that all magazines not sold will be destroyed. One distributor sent us affidavits totalling 500 unsold magazines — except that we only sent them 300 magazines! They very lazily told us there must have been an error in their computer and they would straighten it out eventually. The bottom line is that our return was at best 15% and usually lower. We were losing too much money to them. We do have 3 distributors who have produced great results for us and we will be continuing with them. All other distributors (mostly the large ones) have been cut off. By the way, if you haven't already, I suggest you check out Flatland magazine. It is published twice a year and very intelligently covers such topics as conspiracies, Wilhelm Reich, UFOs, and more. An excellent publication well worth the \$20 a year to subscribe. Contact: Flatland, P.O. Box 2420, Fort Bragg, CA 95437-2420.

Although the covers have changed, all that is between them remains the same. The quality and integrity of the information presented in *The Journal of Borderland Research* is the same as it has been for the last 50 years, and is not about to change. I have always felt that our publication was uniquely on the cutting edge for the advanced researchers and discerning scholars out there. But, I do hope the more academic look won't scare away those who are merely curious as there is something for everyone here.

Finally, I would like to thank our dedicated subscribers, without whose support, this publication would not exist. Thank you for your patience as we once again go through another necessary metamorphosis to bring you "simply the best alternative scientific magazine around!"

Michael Theroux Editor

## THE JOURNAL OF BORDERLAND RESEARCH

# Clips, Quotes, & Comments

#### WATERS WITHIN

As an avid reader of Borderlands, I value a particular element of the work you do. Being that BSRF has over the years taken it upon itself to refresh the memories of researchers in areas suppressed and forgotten. The Mystical Properties of Water (Borderlands 2nd Quarter 1997) was enlightening to read. Often times in various fields of so-called "New Science," people rename and recategorize in lieu of discover. The interest in Living Water is not as much new as it is rediscovered. Now that there are new angles, terms, and approaches to the field, researchers have forgotten the roots of their search. Schisms such as this are what have made Spirit the bastard child of Science. I guess I am not sure what my point is in expressing this to you. I just feel that much of the current interest in water has taken a sterile, uninvolved approach. Being comprised largely of water, we have an inseparable connection to it; we greatly influence any experiment we conduct, as even modern physicists will admit. Hence the mystical properties of water are deeply related to the mystical properties of the organism. As we are not sterile beings, our interest in such things should not be sterile. Let us not exclude our mystical nature in examining the properties of water. We must remind ourselves that we empower the secrets of life as they empower us, give ourselves some credit for the powers of water, as they are the powers within. Thanks.

- Dave Shaw, Cedar Lake, IN

#### Personal Power

Peter Lindemann's article "Colloidal Silver: A Closer Look" (Borderlands 2nd Quarter 1997) was very helpful. As is so common in the New Age and Alternative Health fields, the interest in colloidal silver has prompted countless charlatans and extortionists. Everyone seems to have the attitude that their colloidal silver is the best or purest, for this or that reason. Whereas, everyone else is producing an inferior product, and only theirs works properly—hence the higher cost. Throughout all of the competitiveness there is a real lack of genuine

information. The real value in alternative therapies is that we—the consumers, the non-doctors — are empowered with a little more ability to care for ourselves. But, when no one with the information will let you in on their "trade secret," it all becomes meaningless. The doctors are replaced with new age quacks and the whole field loses credibility. Mr. Lindemann's article offered some real and useful information, serving the original purpose of empowering the patient with a bit more knowledge and influence over his/her own health and well being.

— Tina Buhl, Spokane, WA

#### AMASSED GEOBIOLOGICAL OBSERVATIONS

Having been born and brought up just west of The Great Smokey Mountains, I have always had a connection with natural energies that are commonly associated with the Earth and her features. Natural and man-made features seem to have definite associations with various types of Earth Energies and their intensities. One can see that for the most part, natural features of the Earth's terrain and bowels develop over gradual periods and continue to exist as slowly changing features for long periods of time, although they may disappear abruptly due to some catastrophe. Whereas, man-made features and characteristics are much more cosmetic and much less permanent. In reference to Michael Riversong's article "Advanced Geobiological Classifications" (Borderlands 3rd Quarter 1997), I had a tough time extracting useful information that could be confirmed in some sense by my own experience, research, and discipline, as well as applying any of the classifications to (as a means of reassessing) my experience, research, and discipline. To be specific, the purpose of the article was to better classify the energies that emanate from the Earth and their effects on living beings. The content of the article was to "contribute to our understanding of these energies and their effects on us." Of the seven main kinds of geobiological energies classified and analyzed (Flowing Water, Structural Lines, Magnetic Lines and Spots, Commercial Lines, Minor Grid Lines, Mineral Zones, and Chemical Reactions), the first six of them (all but Chemical Reactions) were said specifically to have unknown composition and uncertain effects. Granted that this was said in a variety of colorful ways, it still undermines the purpose and integrity of the article. In the case of the seventh classification, Chemical Reactions, which was really more of a secondary class than a class of geobiological energy and its effects, as the facilitation of certain chemical processes by geobiological energies was what was actually looked at, the author stated that this was an area that "needs a lot more exploration." Please don't get me wrong, I found that the article contained a great many observations concerning geobiological energies, and these potentially posed some serious concerns. However, the lack of any definite correlations made the title fairly indescriptive.

Another area that I felt was lacking was a firm grasp on the meaning or use of some of the words and terms that were picked out or apart for illustrative purposes. For example the discussion of Magnetic Lines and Spots stated that on the Earth, the magnetic field is fairly strong relative to the planet's mass, but is imprecise and wobbly, been known to move around, is not centered on the gravity poles, and thus unrelated to the planet's daily spin. There seems to be a heaping of different geomagnetic characteristics into one thing called the Earth's magnetic field. For starters, the comment made in reference to the relation between a planetary body's mass and its magnetic field is ambiguous. There are so many cosmic factors that can affect this magnetic field - regardless of the planet's size - factors not unrelated to those that contribute to the "imprecise and wobbly" nature of the Earth's magnetic field. For example, compression activity of the solar plasma, coronal mass ejections, and other cosmic debris captured by the Earth's magnetic field and attracted to the poles, all cause fluctuations in the field. There is paleomagnetic evidence that Earth's magnetic poles have changed position several times in history, however the field not being centered on the poles does not imply that the field and its intensity or any other facet of its character are unrelated to its spin. Actually, it is believed that about 90% of the Earth's 0.5 gauss magnetic field is internal and is inseparably related to the action of the Earth's spin, in particular the differential rotation between the core and mantle, which is of course bound forever to the Earth's daily spin. In a more general approach to the study of the magnetic field, magnetic flux, magnetic moment, intrinsic spin, gravity, and gravitational field and flux, as well as the complex relationships that consequentially develop between these various fields of modern physics, one can see the relation between a particle or body, its mass, spin, orbit, and electrical, electromagnetic, magnetic, nuclear, and gravitational fields.

Although the "grille" and "grail" conspiracy was interesting, it seemed too superficial. Yes there is a common origin and meaning at a certain point between these two words, but it is not so simple. The grille that derives from the Old French word that derives from the Latin gradalis, has its etymology in an older Latin word craticula (gridiron), from cratis meaning wickerwork. Whereas, the Old French word grail was derived from the Latin gradalis, but the older Latin origin is the word cratella, from crater meaning a bowl or shallow vessel. One can see how all of these words have implicit in their abstract meanings the idea of a gradual division or step, or better yet a grade or system of parallel divisions, but simple confused substitution stemming from the lack of appropriate terminology in the Dark Ages is a deGRADing opinion of our cultural heritage. Similarly, ethics stems from the Greek word ethos meaning a man's character in the normal state as defined by custom. The reflexive concept of I or self is related to ego. Since the Greek alphabet has the letter Theta preceding Heta, and Heta is the English H, which is preceded by our letter G, maybe the switch occurred at that point. It's hard to say for sure.

– Robert Shelby, Nashville, TN

#### TELEGRAPH LORE

Sirs, I have enjoyed your magazine. Especially on radio and telephone-telegraph. Have you heard of The Morse code Club [TMC]?

TMC is a group of people interested in Morse code (the code developed by Mr. Morse and Mr. Hayse) not the stuff that one uses on the radio. The group uses dialup morse technologies. In order to reach the morse code club set your web browser to http://www.cris.com/

- ~Gsraven/index.shtml. Thanks.
- Allan R. Egleston, via internet

#### NON-NUTRASWEET

If you or your loved ones drink diet soda, you'd better read this well-referenced article on "NutraPoison":

Quote: The FDA is ever mindful to refer to aspartame, widely known as NutraSweet, as a "food additive" - never a "drug." A "drug" on the label of a Diet Coke might discourage the consumer. And because aspartame is classified a food additive, adverse reactions are not reported to a federal agency, nor is continued safety monitoring required by law. NutraSweet is a non-nutritive sweetener. The brand name is misnomer. Try Non-NutraSweet.

Food additives seldom cause brain lesions, headaches, mood alterations, skin polyps, blindness, brain tumors, insomnia and depression, or erode intelligence and short-term memory. Aspartame, according to some of the most capable scientists in the country, does. In 1991 the National Institutes of Health, a branch of the Department of Health and Human Services, published a bibliography, Adverse Effects of Aspartame, listing not less than 167 reasons to avoid it.... Full article posted at: http:// www.livelinks.com/sumeria/npoil.html

— OBRL News - Orgone Biophysical Research Lab. email: demeo@mind.net

# Mystery of pattern in slough is solved

in last week's paper photo of a marsh that showed some odd geometric patterns.

AR 72127

Plummerville.

#2 Caney valley Dr

Credit: UFO Newschipping Service.

WORLD-SPECTATOR,

Saak.

All we knew was that the photo of circles and lines in a marsh was taken somewhere

an innes in a mains was taken somewhere over North Dakota or southern Saskatchewan on Sept. 3, 1996.

A crop circle enthusiast from Vermont was anxious to find out if the pattern could be some type of unexplained formation. I or told him it looked like it could be some sort of waterfowl nesting project. He was sure it was sure it was probably visitors from another dimension. We were both curious, and I thought if we ran the picture someone might recognize the marsh.

Well, the paper was only out for a few hours before I got a call from Rob Austin. He had flown over the marsh and noticed the old patterns. It is between Weyburn and Radville, he said, which fit the other information we had — that the snapshot was taken from an airliner on its way to Calgary a few minutes after it flew over Minot N.D.

Rob told me he wondered what the pat-

tern was, and found out it was a Ducks Unlimited nesting babitat project. Maggie Austin then gave me a story she had written about the patterns in the wetland, which is known as Tataqua Marsh.

I had the strangest experience when Rob



and I were flying to visit Melany and Dave at Radville. I closed my eyes as we neared the end of our flight. If I watched the landscape below too long, my mind involuntarily processed all the shapes and patterns in the cultivated green fields and dark sloughs, searching for recognizable shapes, like some glant Rorshach test.

When I opened my eyes a few minutes later, I thought I was seeing things. "Look at that!" I almost shouted into the headset. Two immense geometric configurations had been carved out in the scrubby green bog below. They created precisely-cut water channels of loops, lines, and curves in contrast to the drab surrounding prairie My intellect grappled with this new puzzle. I couldn't help thinking of spaceship circles in English wheat fields. For a split second I wondered if anyone else had seen this.

"Do you think it's a drainage system?" [
ked Rob.

"Maybe, or some kind of nesting scheme

Weedmark

for Ducks Unlimited."

"Or aliens," I said, almost under my breath. Rob laughed. Then I remembered when Melany and I were kids, she used to talk about a marsh which neighbored their farm. Taxaqua Marsh, such a hyrical name. I remember as a child wondering why anyone would give a name to a place where frogs and ducks lived

Tataqua, I checked the aviation map. The spelling looked Indian. I imagined Cree travellers coming to know this wet-

land in the midst of the swaying grass.

These loops in the marsh reminded me of a carving I had seen as a girl. We had been on our class field trip in Regins and vere shown a boulder at the Museum of Natural History. It was found in some farmer's field not far away from the city. On it was a simple light bulb shaped human face worn into the rock thousands

Once we arrived in Radville we asked

in the marsh. They hadn't heard a thing. The topic of aliens came up and Melany was soon telling us about cattle around Radville, found with their brains and hearts missing but no signs of blood or incisions. I couldn't resist adding a few tidbits about UPOs and army coverups. After stories of unexplained phenomena, preferably told late at night, had always been the cornerstone of Melany and my

flew over Tamqua Marsh on the way home the dark water loops still boldly defied the quiet prairie. They remained a mystary for a few weeks until I visited my brother Jim on the farm. He confirmed that the chanvere in fact Ducks Unlimited nesting aids. He had flown over them once with a

As it turned out, the mysterious loops created islands for the ducks to nest, free from foxes and other predators. So once again, the legendary marsh was being cared for by those who place value on frogs

So much for the visitors from another dimension theory

Unless you believe that the waterfowl that nest in the marsh come from the mysterious Duck Dimension, that is.

4 First Ouarter 1998

The Journal of Borderland Research

# BORDERLANDS COC

#### A HOLE IN THE THEORY

I read an article called "The Ozone Hole Illusion: A Re-Discovery of the Wheel" (Borderlands, 2nd Quarter 1997), and have to admit that I was pretty impressed. Although I had some trouble at times following the line of thought that the author was apparently pursuing, it really made me think about some things for myself. Like so many other people, I often forget to be "The Skeptic" when being fed some news bite or information. Let it be known that I am not gullible in general, but am usually quite skeptical about certain things, especially things like what the network nightly news tells me is happening or is important.

In relation to the article I mentioned reading. I realized that I am suspicious of the who. how, and why of a subject, but find myself agreeing with the what because it seems simple. Like the supposed ozone crisis that we have going on. It seemed that yes, there is a lack of ozone over certain regions of the globe, and yes, chlororfluorocarbons seem to have those chemical properties, and.... However, I had my own ideas about the behavior of O, and O, in different levels of the atmosphere, as well as unconventional thoughts on the therapeutic properties of oxygen, hydrogen peroxide, ozone, and the like.

Until reading Mr. Bartkowski's article, I had sleepily overlooked, like many other skeptical investigators had, some fundamental flaws in the basic model (basic model being euphemistic for unfounded assumption). The article clearly points out the holes in the ozone hole theory.

I have read some material on the Internet recently that are along similar lines, but in regard to the alleged "Greenhouse Effect." Countless times I have heard news reporters refer to the greenhouse effect or greenhouse gases and the related environmental threat as a matter-of-fact thing. Furthermore we are force-fed the idea that the world's scientists have proposed or supported this theory, yet no researcher or study is ever really cited. The only references that are made are those that refer to political or social decisions, conjecture, speculation, or hearsay. It's not that I disagree altogether with the idea that certain industry practices contribute to certain health hazards,

but I am not sure that we have any real grasp on what and how human activity really affects the global environment. After all, we are mere specs globally, geologically, physically, and chronologically. Thanks for making me think. — Gill Drake, Oakland, CA

#### A MINOR ERROR

Thank you for printing my articles in the last several issues of the magazine. I must mention with reference to the last issue printed (Borderlands, 3rd Quarter 1997) that the table of contents refers to the article "Intellectuals and Visionaries" as authored by me when in fact it was written by Marion Daye - a minor error but one that I needed to point out. Daye's writing is reminiscent of an author of some obscurity from the earlier part of this century. Rene Guenon in his Le Regne de la Quantite et les Signes des Temps (The Reign of Quantity and the Signs of the Times, Paris, Gallimard, 1945) speaks similarly of the academicians of quantity propagating their "damaging doctrine" and "mutated assessments" of culture and civilisation. But, Guenon, as an initiate of the mysteries was well aware that initiation into the realm of the qualitative sciences incorporating erudite interpretations of dreams and visions requires yet a significant responsibility for the adept which seems lost to the "new age" practitioner (if indeed they can be called such) of the present day. Dreams and visions must be interpreted for their worth with the role of the initiation process foremost (wholly considered), or one simply falls into the trap and entanglement of mediumistic pedantry, and the grotesqueries and wanton ubiquity of the practises of channeling. Once again, these pretentious "new age" customs can in no way be related to the often arduous and sublime process of initiation. Thank you for the wonderful forum.

Franklin Ellsworth Clarke

Keep those letters, photos, and clippings coming! Please write to The Journal of Borderland Research - Clips, Quotes, and Comments, P.O. Box 220, Bayside, California, 95524 USA. Letters may be edited for length and clarity.



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# RADIO ARCHÆOLOGY

And the Life and Death of the Marconi Wireless Station, Bolinas, California

by Eric P. Dollard

N June of 1997 Bolinas radio station KPH went silent after ninety-four years of service to the maritime industry. KPH was started in 1903 as PH (Palace Hotel) in San Francisco by famous radio experimenter and pioneer Lee DeForest. PH became a successful wireless station and was later absorbed by the American Marconi Co., as were many other stations and wireless patents. By 1913 Marconi had personally selected a new station site thirteen miles north of San Francisco, near the fishing and lumber town of Bolinas. Bolinas was and still is a geo-physical radio anomaly of exceptional power, a fact recognized by the native Miwok Indians centuries before Marconi's arrival. It was at this new site near Bolinas that Marconi engaged in a major engineering effort — the construction of his new wireless facility, at that time one of the world's largest.

American Marconi employed the J.C. White Engineering Co. to construct the powerhouse and related facilities. General Electric, through the efforts of Charles Steinmetz and Ernst Alexanderson, designed and constructed the wireless appliances. A pair of systems were employed by American Marconi, one was the disruptive discharge/oscillation transformer system of Nikola Tesla, the other was the alternator/multiple tuned antenna system of Ernst Alexanderson. Both systems involved transmission into the earth, which necessitated the planting of large bronze plates in the ocean, as well as many miles of wire in the soil surrounding the powerhouse. These are still present to this day, rendering powerful radionic influence to this site. The Tesla system operated at a power level of 300 kilowatts and the Alexanderson system 200 kilowatts, the alternators running at 18 kilocycles per second. This facility represented the leading edge of science and philosophy at that time, and Marconi had brought the wireless principles of Tesla and Steinmetz together in what was now called KPH. Marconi also brought electricity to the town of Bolinas.

At the height of this endeavor, Ernst Alexanderson proclaimed at an engineering convention that wireless will "forever free mankind from political slavery." Little did he realize that decades later Bolinas would serve as an institute for the perpetuation of political slavery.

In 1919, upon completion of this grand facility, KPH Bolinas, it was seized from American Marconi by the U.S. Navy. In 1920 KPH, along with related facilities on the East Coast, as well as scientist Alexanderson, were turned over to the newly formed Radio Corporation of America (RCA), under the rule of David Sarnoff. Shortly thereafter the wireless equipment, with the exception of the 18 kc alternators, was smashed up and dumped over the ocean cliffs. By 1920 General Electric began the development of the water-cooled pliotron oscillator as the source of high frequency electric currents. The pliotron was a refined version of the DeForest thermionic triode vacuum tube. The pliotron oscillator was much more manageable than previous oscillators, the noise of

which could be heard in the town of Bolinas two miles distant. Pliotrons were silent. Along with the usual bent L aerials, Alexanderson developed new structures known today as colinear-broadside arrays. These arrays remained the principal KPH antennas for the rest of its history.

By 1924, new facilities were completed to accommodate the growing capabilities of KPH. Building "2" was constructed for new transmission equipment and Building "9" was constructed as the power substation control. A parking garage was also erected. General Electric developed new transmitters utilizing the now standard master oscillator-power amplifier configuration. Water-cooled pliotrons called "207's" served as the power amplifiers. The oscillations were derived from a plate cut from a quartz crystal, and then amplified to high power levels through successive intermediate stages using the just developed 860 and 861 tetrode vacuum tubes. These systems were called the "B" sets. operating in the megacycle range with a power output of 20 kilowatts. The Alexanderson infinite propagation velocity principle, used in his 18 kilocycle array, was again applied in a new design for megacycle operation. These were called the Type "A" projectors and had the appearance of fish bones. The "A" was a vertical electro-magnetic broadside array that transferred no electric induction into the ground. Here was the birth of electro-magnetic radio, the radio of today.

At the end of the 1920's and into the 1930's, General Electric developed larger versions of the "B" sets and the "C" sets that followed them. These operated at power levels of 40 kilowatts and began the utilization of crude amplitude modulation. They were called the Type "D" and "E" sets. RCA scientists, Beverage, Carter, and Hansell, developed the electro-magnetic wave antenna. These antennas worked on the traveling wave principle. Large self supporting towers were erected to hold the long wires hundreds of feet in the air. These antennas were called the Type "B" and "C" projectors. Out of these came the Type "D", now known as the *rhombic array*. The rhombic has remained a principal HF antenna to this day.

A new station now stood with KPH, it was called KET. KPH served as the original ship-to-shore service of DeForest and Marconi, remaining in the Marconi Building, now called Building "1". KET, in the new Building "2", served as the point-to-point overseas link to the Orient, replacing the Marconi-Alexanderson 18 kilocycle system. While KET served as the principal call letters for the point-to-point operation, many had to be assigned to cover the vast number of channels the station now offered. The Morse code still used by KPH gave way to the Armstrong Frequency Shift System and Teleprinter Operation for KET.

At this point in history, the sun shone upon this system of communication with disfavor, through the dramatic reduction in solar flux. Lowered solar flux weakens the earth's ionosphere, thereby diminishing its ability to propagate the launched electro-magnetic waves. While

a major setback for HF radio, RCA forced its way through with higher power and larger antennas. The desire to override the competition, in light of the increased crowding of the HF band, forced the use of even higher power. The water could be heard to sing with the Morse code in the pliotron water jackets. Electro-magnetic radio was forever married to the cycles of the sun, undergoing disruption every eleven years. Later, in 1950, RCA scientist Nelson determined that the cycles of the planets also played a major tole in radio propagation, requiring the development of radio astrology.

By 1939 RCA had contracted Westinghouse Electric Corporation to design and build the "F" set. This transmitter differed little from the "D" or "E" set of General Electric (GE), but serves as a point of departure from GE's domination of RCA equipment supply. RCA had already made their own vacuum tubes and condensers for the GE sets, but about this time, began producing complete transmitters. The first RCA designed transmitter for Bolinas was the "S" set. It utilized the new forced air cooled triodes, the 891, and was plate amplitude modulated.

The "S" set was an AM shortwave broadcast unit for voice and music, with an output of 20 kilowatts. About the same time, RCA had purchased the "U" sets from the Bunnel Telegraph Company. The "U" sets were more powerful than the "S" sets, but they had a tendency toward instability in the power amplifier. These were high fidelity, amplitude modulated transmitters with an air cooled plate modulator and a large single water-cooled triode, which required an independent distilled water-cooling system.

At this point in history, World War II was under way and the "U" and "S" sets served in propaganda broadcasting to

Japan. The station was surrounded by army soldiers to protect against enemy attack. Bolinas had become a primary U.S. radio communications terminal, making it a likely target. The Japanese had already destroyed the RCA station on the Philippine Islands. The U.S. Navy reentered the scene, reenergizing the old 18 kilocycle wireless alternators and erecting a new Alexanderson multiple loaded antenna network. The Navy still needed Marconi's wireless technology to communicate with its submarines, as RCA's electro-magnetic radio was incapable of this task. The Navy also utilized RCA transmitters for surface communication, constructing its own Hertzian Dipole antennas for the task. Several signal corps water cooled triode (129B) transmitters were installed in the Marconi Building. With a power out of 10 kilowatts, these became the new KPH transmitters after the war.

When the war ended, so did wireless — for good. Tesla and Steinmetz were long gone, and Marconi was history. DeForest was still alive, but only Farnsworth was still inventing. Then there was Samoff, whose RCA had grown to be one of the most powerful corporations on earth, leaving a trail of dead inventors. The Navy left Bolinas, junking

the alternators. Another layer of breakage went over the cliffs to be consumed by clay and salt. The 10 kilowatt signal corps units, called the "V" sets, remained, and there they served KPH until its final years.

In the 1950's the RCA Global Communication Facility in Bolinas underwent a massive expansion. Building Two had become overcrowded with HF transmitting equipment and obsolete antennas. The rhombic antenna exhibited outstanding performance and became the principal antenna for point-to-point radio communication. The colinear-broadside array remained the KPH ship-to-shore antenna.

The obsolete "A", "B", and "C" antennas came down, and fifty rhombics went up over the postwar years, occupying three thousand acres of land. A 50 kilowatt, 500 kilocycle transmitter, called BL-10, was installed in the Marconi Building. It used a single, massive, forced air-cooled triode (the 5671), weighing over 100 pounds. A 315 foot broadcasting tower with an aviation beacon lamp was erected as its antenna. A shack was constructed at its base to house the large tuning coils. A new building was constructed to house a new 750 kilowatt, 4

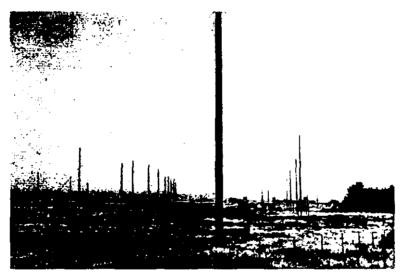
kilovolt power generating set. Driven by a port engine from a Navy L.S.T. landing ship, this set could power the entire town of Bolinas. A large addition was made to Building Two, called 2A. A 2500 kilowatt electrical system was connected to Pacific Gas and Electric (PG&E) to meet the growing station load — the electric bill was \$25,000 a month.

By the mid 1950's, Mar-

By the mid 1950's, Marconi and KPH had grown into a massive radio facility. The lights in the town of Bolinas dimmed when the telegraph operator pressed his key. RCA Global Communications handled virtually all radio traffic to the Pacific. RCA in-

fic to the Pacific. RCA installed its new 20 and 40 kilowatt transmitters, called the "K" and "L" sets. The "L" sets were amplitude modulated and the "K" sets were frequency shift keying. These were refined units representing RCA's finest designs. Some of the control equipment, such as the BA-6A limiting amplifier are still in demand to this day. Broadcasting and teleprinter operations were covered by the "K" and "L" sets.

The 1960's saw the development of a revolutionary new form of modulation called sideband, a process of amplitude modulation that allowed for greater utilization of power and larger channel capacity. Through the use of voice frequency tone group (VFTG) multiplexing the channel capacity per transmitter expanded from two to sixty-four teleprinters. The Telesignal Corp. 101 and 102 VFTG units were purchased by RCA and installed, RCA changing the name tags to the RCA 901 and 902 to make them look like their own. (This was typical of RCA.) RCA scientist Kahn developed his brilliant envelope elimination and reinsertion (EER) exciters for the AM "L" sets, rendering them powerful sideband units with no need for wasteful linear power amplification.



The antenna field today at what was once the Marconi Wireless Station, Bolinas, California.

RCA Global continued to grow in Bolinas with numerous radiophoto, broadcast, teleprinter, and telegraph transmissions. The station load had grown to 1000 kilowatts, and the PG&E Alto Line (Mill Valley) following the Dipsea Trail was no longer able to run Bolinas and RCA at the same time. For some reason PG&E had removed the transformers that it had installed for the young RCA of the 1920's on the 60 kilovolt Lakeville Line (Petaluma), and routed it to Woodacre for the water department. PG&E had to run a new 12 kilovolt line back to Bolinas to serve the station. Two lines, the Alto and the Woodacre, along with its 750 kilowatt alternator, rendered the station a major power center. More transmitters were installed, new linear sideband units called the "H" sets. Like the "K" and "L" sets they utilized forced air-cooled tetrodes. The power out was 10 kilowatts average and 20 kilowatts peak. All modulation was performed at low power levels, thus there was no plate modulator, making for a very compact unit. Some 40 transmitters were now in operation, and over 60 antennas had risen to full glory. Its communications capacity pushed to the limit the old lead and paper telephone cable, which was put up by Chinese laborers in the 1920's along what was to become the Pacific Coast Highway.

As the 1960's came to a close, communication technology began its shift toward satellite systems, where 200,000 teleprinter channels were possible. Rumblings of the closure of KET were in the air. Again the ocean cliffs — two "B" sets, 9BB and 11BB, went over in large chunks, soon followed by the "S" sets. This time however the clay and salt did not claim another era of Bolinas. A group of young high school science students from the Air Force town of Novato were dragging a piece at a time to their garage laboratories. RCA allowed them to freely enter the station and gather what had not gone over the side. One of these students had reassembled 11BB in his parents two car garage. The next generation of radio development was on its way.

By the early 1970's, things did not fare well for RCA Global in Bolinas — KET started to disintegrate, David Sarnoff was dead, Marconi became small letters in a history book, and Tesla who? RCA had no head and flailed like a chicken. The old employees that worked the wireless were in their graves. A single channel remained to the island of Papetee. The crew was down to two in the day shift, Jim Bourne and Ivan Neilson, both old men now. The buildings were empty at night, so a cyclone fence was put around to keep out vandals. The Marconi Hotel stood open to vandalism and its records blew away in the wind.

RCA had decided to junk everything in Buildings 2 and 2A, except the "H", "K", and "L" sets of postwar design. However, the local RCA administration transferred it to the new adult science students. They leased a 3000 square foot warehouse space in San Francisco, known as Project One. These individuals, as well as local Vice President Jim Hepburn, himself an avid and brilliant radio experimenter, felt that new developments were possible in high frequency radio.

The U.S. Navy again reentered, and, through the Coast Guard, constructed station NMC at the Palo Marin edge of the RCA property. This took over the vital functions abandoned by the dying RCA Global. KPH still remained functional and intact, however, being a different branch of RCA called Radiomarine Corporation of America.

By 1975 RCA turned the property over to the National Park Service, a branch of the U.S. Department of the Interior, for preservation. RCA leased back what it needed to run the marine operation KPH, the ships did not want satellite communications. At this transition point a group calling itself Commonweal gained access to the site through the trust for public land. Commonweal, a political organization, showed no

regard for the history of the station, nor for the efforts of those operating and preserving it. In a period of five weeks, Commonweal had destroyed the entire contents of Building Two and sent all historic notes and records into the dumpster — KET vanished to the winds.

At the onset of the 1980's, only little of KPH remained. The "V" sets in the Marconi Building sat dead. BL-10 remained the only active transmitter in that building. KPH operation was transferred to the "H", "K", and "L" sets in Building 2A. These sets were adapted to telegraph operation, something that they were not designed for. Building 2, gutted of its shop and radio equipment, was sealed off by Commonweal and converted into office space and a party hall. Only one of the science students, who now was a professional radio engineer, remained. He operated a small research laboratory in the Alexanderson room of the Marconi Building, repairing and installing cables for RCA and Commonweal to earn his stay. Eventually he was forced out.

KPH, under the management of Ed Brennen, was allowed to decay rapidly. The aircraft beacon was dark, and rhombics crumbled to the ground. Rigging by unqualified persons caused a major electrical fire that destroyed the 750 kilowatt generator. Radio receivers were thrown from second story windows to assure destruction, despite the mandate to preserve them through science education and study at Sonoma State College.

In the mid 1980's GE returned, this time not to create, but to destroy what RCA and Commonweal had not. The "V" sets were smashed up by locals and dumped in a creek bed, except for a few scraps saved by a local fisherman. The remaining laboratory equipment vanished. A guardian of the old Marconi Building, the BL-10 remained active, electrocuting the last RCA employee, George Gieser, as if in an act of retribution. This was the only person to be electrocuted since BL-10 killed one of the RCA's first employees in 1920.

KPH limped along under GE. With rigged antennas that often caught fire and transmitters that performed poorly, the station could not be heard by its own customers. A glimmer of hope appeared. however, as the up-and-coming Globe Wireless Co., which had grown out of KPH's competitor, KFS of Half Moon Bay, applied to the Federal Communication Commission to take over the Bolinas site as it had done with so many other sites around the world. The FCC denied Globe Wireless and instead it was turned over to MCI. MCI threw together a low cost system utilizing cheap 4 kilowatt transmitters made by a ham radio outfit called Henry Radio Co. The crumbling mass of rhombics were heaped into a great pile and four of the original Type "B" towers, which stood since 1938 without a spot of rust, were sold to a foreign country. MCI shabbily erected a new set of colinear broadside arrays. These required debugging by the still present, lone radio engineer and experimenter who, after having his new wireless antennas in town destroyed by Marin County sheriffs, now lived in his car in the antenna field. Perhaps his newly found radio theories could now find commercial application under MCI.

Under MCI, KPH traffic dwindled to nothing. KPH could never get business from American ships due to the lingering hatred of David Sarnoff, the murderer of wireless. MCI announced impending closure, and the remaining customers bailed to Globe Wireless. Station manager Jack Martini courageously rode his ship to the bottom in the maritime tradition.

Finally as Hong Kong fell to China, KPH died, its frequencies sold to Globe Wireless. BL-10 was wrecked by vandals and the Marconi Building stripped of its power source. The building deteriorated rapidly under Commonweal stewardship. Marconi's once great radio facility lay in ruins, and one of the earths most significant radio hot spots sits silent with the exception of NMC. I, however, am the lone radio experimenter and am far from silent. The underground wires of Alexanderson are still present, waiting to sprout into a new form of

At present, in 1997-98, wireless transmission is considered a prehistoric technology, replaced by a vastly superior one of electromagnetic radio. But is radio really superior, or is it a mere shadow of a wider reaching science? When one looks back in history, as recently done by Mr. Vassilatos in his compendia, it is found that early wireless systems not only exhibited significantly less propagation loss and deviation, but also required no batteries or power supply. In fact, it can be seen that some exhibited the properties of energy producing rather than energy consuming systems. Such were those of Nikola Tesla. Is this why KPH

and similar stations are forced to close and new laws rendering radio illegal are in the making?

It must be remembered that the first wireless detectors involved mechanical force between coils, the welding together of metal chips, or the heating of fine wires, all of which require the reception of substantial quantities of electric energy. There were no batteries. Modernistic radio requires amplification of millions to render the feeble electro-magnetic waves powerful enough to produce the same result. The amplifier of course requires batteries or some other source of energy. It was found in the early years that direction finding systems utilizing wireless impulses exhibited little or no deviation, whereas those systems utilizing electro-magnetic waves suffered from scatter and propagation disturbances. Wireless impulses obviously travel a more direct path than do the dispersive electromagnetic waves utilized today. It is further found that the emanations from wireless coils and condensers were utilized by medical doctors to abate a variety of diseases, whereas electro-magnetic waves are an acknowledged hazard to health.

It is instructive to examine certain tech-

nical distinctions existing between wireless technology and the radio technology of today. It is also instructive to examine the efforts to block the scientific research and experimentation (at locations like KPH Bolinas) required to revive an important technology.

In electric wireless systems there exists a reciprocal relation between the energy of the antenna network in contact with the space and the utility that supplies power to the wireless transformers. Thus the reactance of the antenna network appears as a reactance to the power company, if the wireless system is so adjusted. Therefore, it is theoretically possible for the wireless system to become a supply of electrical energy to the power company without burning fuel. In contrast, the load offered by contemporary radio systems is a pure resistance to direct current, the very archetype of the destruction of electric force nothing is returned to the power company.

Another distinction is that wireless networks such as the Tesla oscillation transformer, Alexanderson multiple loaded antenna, or the Marconi coaxial antenna, all exhibit frequencies and wavelengths of higher order than those of electro-magnetic radio. These factors exist as complex quantities or conjugate pairs. Their propagation involve factors beyond distance and velocity, thus transmission wit' out travel through intervening space. Electro-magnetic radio waves are inexorably tied to the effective velocity of light and the impedance of distance.

Ultimately it must be stated that the distinction between electric wireless and electronic radio is that wireless engineering is a science of the æther and radio engineering is a science of physical matter. Wireless theory considers space to be filled with an all permeating æther, this æther possessing the capacity to store and transfer energy

> in the form of a pair of conjugate fields of induction. These are called the magnetic field and the dielectric field. An alteration of the field intensity at one location results in an alteration of the field at another location, irrespective of distance. From cosmic forces and not human artifice, wireless networks ultimately are self powering.

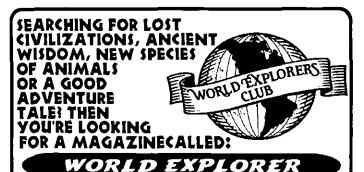
In contrast, modernistic electro-magnetic radio theory considers space to be empty and distorted. Propagation is effected by a forced spray of photonic particles, traveling at the aforementioned effective velocity of light. Magnetic and dielectric actions are ignored, and instead the actions of physical particles like electrons serve to store and transfer energy. Distance and velocity are the principal factors, and the continuous consumption of energy is required, supplied by an artifice such as a battery or engine driven genera-

The loss of the ætheric science of wireless and the supplanting of radio can be attributed to a pair of causes, conflict between the various pioneers of wireless and the subjugation of science and philosophy by corporate force. DeForest vs. Fesseden vs. Armstrong vs. Marconi vs. Tesla vs. etc. was the way that wireless developed. Not

only did these individuals not completely understand their own discoveries, but a comprehensive science did not exist to unify them. The situation was further compounded by corporate moguls entering the science with capitalistic forces that fueled the conflict, and by institutions that favored dysfunctional theories. Names like Samoff, Morgan, and Rockefeller were the principals of this factor, a historic example will serve to illustrate the condition. Long distance cable telephony was set back many years by the British Royal Society's firm denial of the dielectric factors involved in the transmission of impulses through the long undersea cables and telegraph impulses were smeared, thus limiting the speed of transmission to slow rates. The brilliant Scottish theoretician Oliver Heaviside demonstrated in his archetypal



Galactic life in a light bulb? Cosmic forms appear in plasma discharges inside glass bulb. Created by Eric Dollard at the old BSRF Laboratories, Santa Barbara, California, 1988.



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telegraph equation that the dielectric term RC had to be brought into accord with the magnetic term LG to facilitate the undistorted transmission of electric impulses.

The Physics Institute declared Heaviside a fool and forced the cable business to labor under an unbalanced understanding of the electric forces involved. Later electrical scientist Michael Pupin, a contemporary of Tesla and Marconi, developed a physical realization of the Heaviside Theorem known as the "Pupin Coil." This development was quickly bought up by the young American Telephone and Telegraph Company (AT&T). AT&T holding patent rights to the Pupin, or loading coil as it became known, gained absolute control over the long distance telephone business. Oliver Heaviside, who can be given credit for establishing the entire ground work for electrical engineering mathematics, died in poverty and was promptly forgotten. AT&T grew into a company of great wealth and power. If not for the effort of Charles "Proteus" Steinmetz, much of Heaviside's work may have been forever lost.

The exact same condition exists today with regard to radio and the more generalized wireless, except with a less favorable outcome. As shown by the Heaviside in his electrical equations and further developed by myself in the tradition of Steinmetz, wireless transmission can be shown to involve a conjugate pair of propagations, the electromagnetic and the magneto-dielectric. Electro-magnetism and the adulteration of its theories by Einstein and the like has become the accepted element of the propagation of electric forces. The conjugate magneto-dielectricity, and the brilliant presentation of its dimensionality by Rudolf Steiner and his followers is denied by the corporate cable institutes. But, as with the cable long distance case, electricity plays no favorites, and radio transmission suffers from analogous distortions. The archetype of conjugate pairs exists everywhere, however, and some examples will illustrate.

A very simple analog is the male and female of a given species. The species can only propagate as a conjugate pair, the male being the dielectric and the female the magnetic. Likewise, the branch and root of a plant work together as a conjugate pair, the sunlit branch as the magnetic and the root in darkness as the dielectric. An excellent example in symbolic representation is the final choral movement of G.F. Handel's Alexanders Feast- "The Power of Music."

The learned doctors' physical science will hear none of this heresy, and continues to labor under the delusive mathematics of chaotic uncertainty. Modernistic music serves analogously with its painful screeches and howling, empty of spiritual content. Popular music is reduced to a computer generated sado-masochistic march. This pathological social condition is brilliantly analyzed in the writings of Wilhelm Reich under titles such as *The Mass Psychology of Fascism* and *The Murder of Christ*. Needless to say Dr. Reich died in a federal prison. Modernism accepts no criticism.

A final illustration exists right here at Marconi's KPH in Bolinas. In a simple laboratory made from so called obsolete radio equipment salvaged from the hammer and axe of the "lehrned" doctor, a remarkable discovery has been made. Through the application of wireless principles, cosmic superimposition was effected on the work bench. Suns and stars in stunning Galactic form burst forth, creating matter and energy on the spot, yet across the bay at Livermore Lab, with billions of kilowatt-hours and dollars no such thing seems possible, but the kilowatt dollars continue to flow. After all, you pay for it.

# BORDERLAND VISIONARY:

# The Life of Sir William Crookes

by Gerry Vassilatos

N the pantheon of our qualitative science there stand a grand assembly of highly venerated persons, the mere mention of whose names is sufficient to evoke inexpressible sentiments. Some of these have been justly venerated to a station which is not inordinate, being of such grand stature in their achievements that to deny them due homage would be unjust. We note that a few of these distinguished ones so deeply touched each their generation, that whole epochs became intimately associated with their names alone. How beautiful and fitting that we find it often quite impossible to mention certain scientific periods without first recalling them, name by name. These are the doorkeepers of an epoch, who names must first be acknowledged, evoked so to speak, before being permitted entry into their realms of knowledge. No greater earthly glory can be acquired by mortals.

#### ROYAL

The Royal Society had gathered to hear a lecture by one of the most eminent members who had ever blessed their halls. After having been announced by the president of the Society, the principle speaker walked to the large proscenium area, took his place behind the wide demonstration table and began to speak in a fervent, ringing voice. He was elderly, formally dressed in a black waistcoat of a former time. The loose black evening cravat wrapped the high white collar, and nearly framed the now radiant face.

Bright and cherubic, in glittering spectacles, the guest looked down for a brief moment. It was as if he lingered in some wonderful clear peace, awaiting an inner impulse to speak. His trimmed silvery moustache and the pointed silvery beard lent an otherworldly air, and as he looked up again all eyes came to rest upon the curious elfin figure. This was not the first time that the assembled members of the Royal Society had seen the wonderful Sir William Crookes. No one present in that assembly could have long remained ignorant of the man standing before them. Sir William and his mysterious investigations into Radiant Matter had captivated the greatest minds of his time. And while most believed that the ætheric implications of his work had been explained away, there remained a lingering suspicion among a dwindling membership that he had eluded them all with a far deeper secret.

"When I was asked a month or two ago to illustrate in this theatre some of my recent researches on high vacua, I exclaimed how is it possible to bring such a subject worthily before a Royal Institution audience when none of the experiments can be seen more than a few feet off?" Two former decades had passed since his first demonstrations on Radiant Matter were given. It might as well now have been a former age. So rapidly had the scientific movement taken the industrial world, that the famed Crookes Tube seemed to be an antiquated and

elementary device. But perhaps then, few had actually comprehended the full meaning of that simple "antique."

He once believed that he had been careful about elucidating these matters. He also



believed that his original dissertation, presented in 1879, had been clear and forthright to the illustrious Society. There was no reason for him to doubt his proficiency in the lecture hall. How far can facts be twisted, taken from fact and distorted into rumors? But over the long decades, he sadly observed a peculiar reaction which repeatedly worked to dispel any new advancements in thought. There were those Society members who, after both having seen his classic demonstrations, somehow failed to sustain the precise message which had been delivered to them. This strange principle maintained an arrested consciousness in the scientific ranks of the Society, rendering them incapable of philosophical progress. And without first appreciation for philosophical principles, there would never be true scientific progress.

"Like a traveler exploring some distant country, the wonders of which have hitherto been known through reports and rumors of a vague and distorted character, so for years I have been occupied in pushing an enquiry into a territory of natural knowledge which offers almost virgin soil to the scientific man". The majority were now unable to hear the simplest of his statements without somehow automatically "reinterpreting" his ideas. This automatic process consistently obscured topics which opened to the more vitalistic aspects of natural lore. This degenerative process obscured the real impost of his work, that which literally claimed to point a way toward a vision of deeper dimensions. But in them, he perceived a growing ignorance, which was not so much a darkness of intellectual resource, but a darkness of intellectual use.

The amount of factual information had increased beyond the ability of science to remember all that had been observed. But the manner in which these facts were reorganized and reinterpreted which deeply distressed Sir William. "Are we to investigate nothing till we know it to be possible?" In his estimation, science was on the verge of an important divergence, one which limited scope by a stringent doctrine. It would thus become polarized, on the one hand opening up to new awareness, yet on the other resisting change.

"It is not reason which convinces a man, unless a fact is repeated so frequently that the impression becomes like a habit of mind." What he

now recognized was far worse than scientific agnosticism. Having miscarried the vision which had been faithfully delivered to them, the younger generation of "scientifics" had chosen a selective number of facts, and certainly not the philosophy. It was rather like being given a lovely rose bush...cutting off a few roses, and then killing the shrub! The eradication of all things pre-modern seemed more important to the young scientific revolutionaries than the reverence of learning, of knowledge, and of a deeper vision.

But this revulsion of all things pre-modern manifested an unmistakable tendency to repulse and repudiate themes which were Vitalistic. And the lifelong theme of Sir William Crookes was a Vitalistic theme.

"With all my senses alert and ready to convey information, believing as I do that we have by no means exhausted all knowledge or farhomed the depths of all physical forces." So here stood the very personification of that antique worldview, and the Hall was never more divided in their opinion of his presence near the proscenium. Having well comprehended the present dilemma, Sir William fully intended to baffle the minds of his younger antagonists. "The consciousness of my senses, both of touch and sight...and these having corroborated by the senses of all present...are not lying witness when they testify against my preconceptions."

Many had already critiqued his past works in the scholarly journals, mocking his "simplistic" views. But he was not concerned that his work was being critiqued, so much as that the Victorian approach to science was being critiqued. There was already an established background of biased thought, a progressive epidemic of erroneous doctrine. "If a new fact seems to oppose what is called a 'law of Nature,' it does not prove the asserted fact to be false, but only that we have not yet ascertained the laws of Nature...or not learned them correctly. And if you find a fact, then avow it fearlessly, as by the everlasting law of honor you are bound to do so."

He fully intended on thwarting the proliferation of this doctrine by throwing a few simple facts into the group mind. Any convincing polemic in the Victorian tradition would stand to confront the new and alienating quantitative science. The well-organized machinery might be disrupted by an experiential form of sabotage. He would attack their dead view of the world by giving them such an irrefutable experience of his realm so as to haunt the Hall and its annals for a century if necessary.

#### **GEMS**

When his work with electrostatic discharges in vacuum was first brought forth, it was immediately wrangled into a theory of particles and quanta. For Sir William, his experiments with ultravacuum began as an extension of experiments performed by Baron von Reichenbach. His intention was to test those early experiments by which the Baron discovered a luminous emanation exuded by magnets in vacuum. Sir William's thought was to extend this principle to an exploration of the electrostatic field in vacuum. Would the electrostatic field reveal a new world of Light when the vacuum was very high? But that noble name of Reichenbach was forgotten by his colleagues, buried along with Mesmer and Galvani. The work of each of these legends, in their study of vital force, had somehow managed to offend the intellectuals. Their scientific approach had no place for vital energies.

"New forces must be found, or mankind must remain sadly ignorant of the mysteries of Nature. We are unacquainted with a sufficient number of forces to do the work of the Universe." The only recognized

forces consisted of gravitation, magnetism, electrostatics, and the new nuclear force. Theories which might as much as intimate the existence of soul, spirit, or vital force were very much despised. Sir William had long championed the notion that the qualities of matter were not sourced in their "atomic focal points."

In these experiments with ultravacuum tubes, Sir William had consistently observed that matter was possessed of a whole and continuous nature, bearing qualities which emerged into our world from a "fourth state." The process of allowing matter to expand in an ultravacuum seemed to reveal these qualities in the complete absence of inertia. Had he found an experimental means for proving the existence of Platonic Solids? His classic work with vacuum discharges was concerned with the deep mysteries of space, of a peculiar black radiance, of radiant matter, a fourth state, of force, and of light. In their ultimate implications, Sir William intended to instruct on certain aspects of the human aura, the world of ectoplasm...the world of matter in the fourth state, of intimations concerning the luminiferous æther, and of consciousness.

Tonight he hoped to again clarify and disentangle the singular distinctions of his original thesis from all the confusion which had transpired in the intervening decades. Those younger and more discourteous appointees had already been taught to reject Vitalism without so much as a breath. The rejection was becoming automatic, easy. It was unbefitting for scientifics to refuse skeptical examination before repudiation. For them, the gentlemanly figure was merely an silvery antiquated curiosity who was satisfied to delve in dubious and unscientific realms of research. Worse. For some, the legendary name of Sir William Crookes had already been "tainted" because of his willingness to explore psychokinesis and other paranormal forces, as did Baron von Reichenbach before him. Many did not therefore wish to hear Sir William speak at all.

But he had longtime experience of the audacious accusations levelled against him for this research on the paranormal. Sir William had already prepared himself against this prejudicial atmosphere, and fully intended on dispelling the many intolerant presumptions in the audience. And yet he managed an unearthly jolliness! He was not vindictive, but was rather soft in approach. He would summon all the magic in his delightful devices, his arsenal of marvels, to reach these darkened minds.

In addressing the Royal Society he hoped to haunt the whole world of Science with a deeper view of natural reality. A vitalistic view. Toward this end, he would use one weapon: sensation. Direct, tactile, and irrefutable. Sensation would work with him, achieving some new reawakening.

"The kindness of your late secretary, Mr. Spottiswoode, placed at my disposal his magnificent induction coil, not only for this lecture, but for some weeks past in my own laboratory; thus enabling me to prepare apparatus and vacuum tubes on a scale so large as to relieve me of all anxiety so far as the experimental illustrations are concerned." His face shone, a childlike willingness to share what he had learned. This brotherly nature and merry mood was a birthright which he inherited from living in a large extended family. He was fun to watch! As he began, a mercurial levity filled the hall, and the mere mention of each supportive discovery in his theme filled the many diverse listeners with an enthralled sense of mystery. While he spoke, the august assembly was silent.

"Anomalies may be regarded as the fingerposts along the high road

of research, pointing to the byways which lead to further discoveries. Now these residual phenomena, these very anomalies, may become the guides to new and important revelations." He was always sensitive to atmospheres and vibrations. In surveying the Hall, he was now also sure that his audience had lost all awareness of his principle reasons for conducting those first experiments in high vacuum electrical discharges. But he was energized by the prospect and, having brought forth his now classic tubes from their dusty old glass cases, was fully ready to command the scene. Surrounded by his now-famous collection of large vacuum globes and specially designed Ruhmkorff Coils, his eyes twinkled with delight.

His was a voice which had the power to convince and thrill. "In the course of my research, anomalies have sprung up in every direction. I have felt like a traveler, navigating some mighty river in an unexplored continent... and promising rich rewards of discovery for the explorer who shall trace them to their source". He was a model of the romantic and heroic Epoch, enabled by some wonderful inner force to formulate concepts which had previously occurred to no one. It was the manner in which his mind managed to "ask the right questions," "see the right effects," and "make the right connections" that set him apart from most others.

"In Science, every law, every generalization, however well established, must constantly be submitted to the ordeal of a comparison with newly discovered phenomena...and a theory may be pronounced triumphant when it is found to harmonize with, and to account for facts which, when it was propounded, were still unrecognized or unexplained."

Though his manner was cordial and cheerful, he did not lack in the disciplines required by his profession. Of the scientific professional he said, "[H] aving once satisfied himself that he is on the track of a new truth, that single object should animate him to pursue it...without regarding whether the facts which occur before his eyes are naturally possible or impossible." Indeed, in this theme, he penetrated avenues of contemplation which were positively astounding. His was a vibrant and inspiring mind which was exceptionally creative on a great many issues of natural science.

"The little bye-lanes often lead to the most valuable results. After a while the facts group themselves together and best tell their own tale." This rare and innate forte permitted his subtle but decisive ability to shock and surprise his students. But he laughed and chuckled as he spoke. Was this a scientist...or a magician? For those who loved Sir William Crookes, this was quite an event. Here was a reasonable lesson on a field of inquiry having potentially unreasonable directions.

But the audience was not filled with his admirers, of this he was well aware. Some had already committed the most unforgivable and ungentlemanly acts of cowardice. Having attacked his investigations in the scholarly journals, there were those who attended in order to obtain more evidence against his methods and themes. Those persons sat in his audience. But he had no animosity toward them. None was left amid the joy of love, the joy of illuminated wonder.

"Dr. De La Rue, who occupied the chair, good-naturedly challenged me to substantiate my statement that there is such a thing as a fourth, or ultragaseous state of matter. I had no time then to enter fully into the subject, but as I find that many other scientific men are in doubt, I will now endeavor to substantiate my position." The lecturer surveyed the hall. Sir William was an exceptional master of the dramatic, exercising a distinct and unique flair by which had also

become renown. Besides presenting a strictly scientific thesis, he thoroughly exploited the more theatrical aspects of the lecture hall.

Each aspect was part of his method, a method designed to stimulate an epiphany in each hearer. Metaphor was often more valuable to his method than mathematics. He knew how to move the inflexible pride. Drama and other emotionally provocative movements were always successful in stimulating the prelude to learning, to true change. Without drama, there could be no impression in the icy world of the Royal Society. Radiance and color, darkness and Light. The prelude to Light was darkness. But before light could penetrate the mind, before it became a beauteous contrast to isolating emptiness, there had to be an immersion in darkness. The room was therefore necessarily darkened for several moments. When all eyes were now accustomed to the dark, his voice rang out quite suddenly. "One of the most noteworthy properties of Radiant Matter is its power of exciting phosphorescence." In an instant, out of the deep darkness, a green light flickered momentarily in midst of a large glass globe.

His beaming face was semitransparent as the pure green rays flooded the Hall. "My earlier experiments were carried on by the aid of a strange natural phosphorescence which glass takes up when it is under the influence of the radiant discharge; but many other substances possess this phosphorescent power in a still higher degree than glass." The current was applied to another globe, one which housed a large mineral crystal. As it sprang into a blue brilliance, the room grew hushed once more. The color filled the entire room. "When this sulphide of calcium is exposed to the discharge in a good vacuum, it will phosphoresce for hours." Withdrawing the electrical current, the stone continued glowing as brilliantly as if continually stimulated by an unknown radiant source.

"Without exception, the diamond is the most sensitive substance I have yet met for ready and brilliant phosphorescence." The diamond, mounted on a post within the large globe, was now glowing in a vivid green light. The sight moved the entire room. Everyone leaned forward to see, to gain some sense and feel of the phenomenon. Sir William smiled with glee! There! The vibrancy of that wonderful diamond light was fast melting away all academic resistance, all the critical effrontery, all the callous aristocratic pretense. That diamond light dissolved every personal wall, releasing the child in each member once again. The most acrid of academes remained positively entranced by the glow of his lamps.

Their vitality returned as fresh as springtime. It was as if many of them were awakened from a deep sleep of the mind. And here was his brilliant, wordless theme at once unfolding! His commentary was just as resplendent, deeper in fact than the light which now issued from the vacuum tube. His joyous voice continued. "Next to the diamond, the ruby is one of the most remarkable stones for phosphorescing." Assistants quietly switched off electrical power from the large Ruhmkorff Coil in the center of the demonstration table. Electrical connection was established with a second large globe, an elongated ovoid.

"Nothing can be more beautiful than the effect presented by a mass of rough rubies when glowing in a vacuum." As the current was silently applied, the entire large ovoid globe became a dazzling red light. "They shine as if they were red-hot." The color permeated the room. "In this tube of rubies, there are stones of all colors...the deeper red and the pale pink...but under the impact of Radiant Matter they all phosphoresce with the same color."

**VERMILION** 

Rubies. Collections of rubies. He looked out into the crowd from his place behind the table. All faces were clearly seen in that red radiance. Each reflected back varying degrees of that pure and deep vermilion light. As he observed this remarkable effect on the face of his audience, he thought aloud. "It scarcely matters what color the ruby is to begin with...under the impact of Radiant Matter, they all phosphoresce." Some managed to derive from that phrase deep meaning.

There were those who long lingered on that phrase, for it taught a multitude of lessons quite all at once. This was the remarkable manner and style of Sir William. He always managed to speak on several simultaneous levels. On one level, there were the scientific revelations. On another, the social implications. On yet another, the personal revelations. What was it about his personality or subject matter which permitted this astounding juncture of consciousness?

The deep light of his rubies flared into a deeper and more brilliant light. The wonder of his life was not unlike these wonderful glowing tubes. He had come out of the darkness, out of a peculiar class vacuum, was touched by some thrilling and inscrutable energy, and became suddenly radiant! And here he was, as so many previous appointments had invited, standing and lecturing to the Royal Society. How had it happened, that he of all people was granted such favor as to be elevated to his present station?

Between the thoughts which were now flooding the hall, between the lines of his lecture, between the strokes of a second hand, he quietly turned his gaze to the radiant rubies for another look. Just then, just as he paused to gaze into the deep red light of his ruby tube before opening the switch, Sir William looked into another world. A window suddenly opened to him, and he looked in. The innocence of his childhood was always close to the surface. He recalled how his mother would called to him from the lower floors of childhood's home. He had been wondering at the morning sunlight far too long, gazing out at an upper windowpane. The other younger children had already surrounded the kitchen table and were awaiting his presence.

Seated and ready for morning prayers, breakfast, kindly admonitions, and school, the family waited for the eldest son to take his place. As William quickly arrived, it seemed to him that the entire household was full of light. Light was everywhere, or was it just an afterimage? Seated near his father, and casting his gaze all around him, he saw the light glowing in his little brothers and sisters. No, he was sure. This was no disappointing afterimage. This was the light of life, and it merged with the sunshine in a most remarkable way.

William loved to hear his father's many accounts. His father was something of a wonder, a life filled with a hundred episodes. Those were the days when families sat at table together, respectfully hearing the tales and admonitions of their elders. Each of his father's stories had their distinctly miraculous tone. The chapters in his life read less than that of a poor tailor from the country, and more like the chronicle of a minor prophet. His father was born of poor parents, a misfortune at any time in English history. In England, being born in poverty, meant that one died in poverty. There were no informal means for achieving some kind of social mobility in the rigid caste system. No mobility what soever, except for the occasional "accidents." And the elder Joseph Crookes certainly attested to these, although he never believed in the "accident" of a divine blessing.

Out of poverty, in some inexplicable manner, his father was fortunately apprenticed to a master tailor who lived in his township. In time, Mr. Crookes also successfully acquired the title of master tailor. Yet

unemployed, the hope of rising out of his impoverished station seemed dim. It was shortly after this sad realization that the smallest light of an opportunity twinkled for him in the distance. The children always liked this part of the story. Father repeatedly told how he had come to London, poor and humble, in hopes of earning the smallest living. Used to poverty, any work would have satisfied him. "Crookes" was an unlikely name for anyone to trust. They all laughed. But this mastertailor was no twisted branch, no prodigal son. Hard work, perseverance, and prayerful diligence prevailed. Employed in a small tailor shoppe, Mr. Crookes began his routine with great thanks. He was fortunate to have secured such a position.

Soon, he was married to his second wife, Mary Scott. William, their eldest son, was born on June 17, 1832. Then the magic in their lives grew, for the elder Mr. Crookes suddenly found himself the focus of a monetary whirlwind. It was one which did not cease its spinning magic until a veritable trail of silver flooded the Crookes family purse. The small twinkling light which had brought him to London became quite a brilliant stream. From town to city. From poverty to riches. William never tired of this wonderful story, this family history. Over and over again, he turned the episodes in his heart. Once their message reached his mind, he saw them as something of a sure hope. If his father could have escaped poverty against those impossible odds, then he might also further the fortune of his life. If only the same blessings were on him, who knew where the paths would lead?

Without that inscrutable blessing, so obviously at work in his father's life, William knew that he might never have had opportunity to study natural science. And natural science was what his heart loved best. He was thankful, grateful for all those about him. But the clock struck the hour, and the family parted until dinner once again. William was off to a day of lectures and laboratory exercises at the Royal College of Chemistry. His father's kind eyes spoke in silent approval. William was not going to be a tailor. Just as well, he was exercising a new kind of apprenticeship. This was a new world, was it not? Was anything impossible?

William would try to do as his father had done. This sweet and golden image of sunny early days never faded in his mind. Its treasure merely withdrew at times, slipping beneath a red setting sun. The sea softly rippled with other luminous thoughts. Red luminous thoughts. The red radiance of his tubes reached their crescendo, flared more brilliantly, and Sir William felt the Lecture Hall around him. He withdrew the power, and watched the rubies sustain their individual colorations. Their afterglow was a special effect which few ever appreciated. He noted that only a few continued to radiate light. Looking out into his audience, he saw the same effect. Some faces shone more brilliantly than others. Some would not glow as brightly. Yet others would show themselves incapable of reflecting any light at all.

This reverie, known to him alone, was far too touching. He felt much humbled. How ordinary he was in comparison with most of these persons who were seated before him! He was not the son of upperclass breeding. He bore no aristocratic emblem. He had no ancient lineage to claim extraordinary right. But not one of them had the fire of light within. Not one seemed to draw radiance from the light. Yet here he stood, the son of a once-poverty stricken tailor. Here...among the rubies!

#### **SPECTRUM**

"The spectrum of red light emitted by these varieties is the same as

described by Becquerel twenty years ago. There is one intense red line...having a wavelength of about 6895...and a few fainter lines beyond it, but they are so faint in comparison with this red line that they may be neglected." Indeed, only the brightest colors are noticed and prized. He recalled the day he was entered into The Royal College of Chemistry in London. It marked the episode which proved to him that blessings do not fade.

His was a biography which seemed in every aspect identical to the good fortune of another young man. Years before, the young Michael Faraday was elevated to eminence. Though a bookbinder's apprentice, it was the exuberant love of all things scientific which first attracted Faraday to audit lectures at the Royal College. Through a similar series of encounters, Faraday met the great Humphrey Davy, and became his personal assistant.

When William Crookes was asked to be August Wilhelm von Hoffmann's ownpersonal assistant, a definite turning point was reached. It was one which forever sealed his fortune. William so impressed the master chemist with his innate and intuitive laboratory skills, that he was soon invited to attend lectures at the Royal Institution. There, young William heard presentations by the most eminent scientific explorers of his day, a profusion of diverse topics. The meetings introduced him to an innermost circle of the scientific world. The prodigious honor was excelled only by an unforgettable meeting. How wonderful it was that William Crookes met the great Michael Faraday himself!

Faraday sought William out from the crowd, a rare and humbling experience. Faraday had kind eyes, but spoke with a clear and forthright voice. He had heard much of the young man, and saw much of his own life in William. He strictly encouraged the young man to take up the pioneering study of chemical spectroscopy, promising him that the greatest new chemical discoveries would there be made. William took that advice as from a master. Years later his prophecy would be fulfilled. Time had passed indeed.

Having thus recalled the great Michael Faraday, a bookbinder who virtually established the world fame of the Royal Society, Sir William added a few words in the way of tribute. "The great philosopher's lecture on Radiant Matter was given in 1816, when Faraday was twenty four years old." Remarkable! Faraday preceded every major scientific revolution by sixty years. He called for the lights. Were there, he wondered, any young hearts out in the audience of similar affections and intuitive skills? Were there any fervent and curious minds out there? But his eyes scanned about the room, spying out only those whose dispassionate expressions betrayed only a singular disinterest.

There was a time in which he had become angry with the exceptional lack of vitality among certain Society appointees, but gradually grew to understand this as characteristic of the aristocracy. The bored deportment of most who sat in the audience may have been the direct result of patronage and breeding, but was certainly not the result of artistic fervor and scientific temperament. These were the sons of patrons and traditional families, who merely occupied their elected posts. It was they who, through effete vanity usually obstructed the discussion portion of the Society Proceedings with antagonistic interruptions; although such questions were designed merely to reemphasize jurisdiction over the Society.

Of the illustrious Society and its message to the world at large, they seemed utterly incapable of offering anything in the way of adomment or enrichment. Sleek and self-composed, there was nothing in the way

of scholarship in all their thoughts. There was no spark of curiosity, no scientific life in them. No love, no necessity to learn, to excel and advance. One heard the dour temperament in the affected congestions of their speech. Smug, arrogant, implacable, and reprehensible, he knew who they were very well. And while he would do his best to dissolve away that critical and elitist air with his animated bravado, he did recall his first hurtful encounters with the gentry.

#### GLITTER

The path of his life had produced a glory, but it had not been an easy journey. The long night hours, the dusty volumes, the long thought trails. These were internal struggles which evoked the deepest personal transformations. The enrichments of knowledge required a demanding discipline which could never be ill-spoken. The exhaustion of his effort and much labor was not without its wonderful reward, its divine response. One became radiant only after having endured "the process." The dreams, hopes, failures, achievements...all those trials and errors formed a unique tapestry, whose current and flood required a unique willingness to press forward. Few of his elite schoolmates were willing to abide the discomforts of such intense desire for even a moment.

Class distinctions were very much alive and active in that day. It still is. Their repugnant and smug misuse of all others had a dubious distinction. It was world-famous! William recalled well the manner in which the aristocrats had never accepted his father. The status which they proscribed to him was that of a mere servant, whose talents and abilities were viewed as a resource for their personal service. Despite his wealth and dignified stature, the aged Mr. Crookes was never allowed into the inner confidences of that upperclass.

This mistreatment extended to young William. He had sensed it all around him in the College. There were those whose presence in the lecture halls had nothing to do with scientific passion, nothing at all to do with the need to learn. But there they were. In addition to this effrontery, he was often excluded from their social clusters. Since his father was a tailor, this was considered a mark of fundamental division, a blot on their potential social registration.

But William was indignant of these self indulgent traditions. He bore his father's station as the greatest mark of honor. He espoused his father's teaching, and taught his own children that only in prayerful effort and impassioned endeavor true greatness was won. Great men were made, not born. He would rise above his detractors in avenues, perhaps not in elitist isolation, but in achievement. When he was scarcely twenty two years of age, he was appointed as Superintendent of the Meteorological Observatory in Radcliffe. His life had been a walk in wonders. The new appointment, a straightforward confirmation of prayer.

Within two years of this installment as Superintendent, tragedy struck. His father passed away in the night. William was crushed, the family in disarray. William, being the eldest son, was now to rear and guide his younger brothers and sisters. They would forever look to him for morale, guidance, and comfort. He would look to them for solace. It was a position for which he was admirably suited, but the loss of his father deeply affected him forever after. The fortune, to which he was heir, was wisely invested.

He had learned a great deal from the German chemist, Dr. August Wilhelm von Hoffmann. It was with Dr. Hoffmann that William saw the value of every new scientific find. Von Hoffmann viewed each stray scientific fact and phenomenon as of paramount importance.

Every natural effect was observed and valued. Each was aggressively scrutinized as if it alone held some new secret to an entire world of industrial potentials. Crookes saw the validation of ideals which Faraday had quietly cherished. It was in the employ of von Hoffmann that William Crookes learned the German ethic of free enterprise firsthand.

He understood that German attitudes were not at all like the British ones in terms of class and stature, a surprising and strangely comforting discovery. The traditional system of dialogue between all classes, professions, and occupations, became the essential secret of Nineteenth Century German Technology. Lines of communications were opened to all for the good of all. This became too evident before 1870. In the meteoric development of chemical process and metallurgical applications, Germany had no equal in all of Europe. This was dangerous, and Crookes did not lightly esteem the imbalance of power in Europe. But his subsequent accomplishments had several trenchant motives, not the least of which was an importation of the German scientific ideal. One was the expansion of the working class ethic, and the extension of their rights in the realm. Another was the simple undoing of the aristocratic element in the scientific circles. Their obstructive influences had diminished every scientific revolution which defied their aesthetic. And what was their aesthetic? The methodical elimination of working class aspirations.

Restricting, limiting, and diminishing this dream potential among the lower classes was first achieved by restricting attendance in higher learning institutions. This rule also diminished the chance that working class persons would rise, if in mind only. This aristocratic rulership of knowledge was also the principle reason why Vitalism was so deeply despised among the British scientific aristocracy. But such knowledge as William was amassing through his potent expertise was neither going to be restricted or exploited by the rigid British structure on any level. Here he drew the line. The secret was contained in a simple notion: seek out the most obscure and strategic facts. Consolidate every bit of knowledge in that field of study. Prioritize the knowledge.

"In the practical world, fortunes have been realized from the careful examination of what has been ignorantly thrown aside as refuse; no less, in the Sphere of Science, are reputations to be made in the patient investigation of anomalies." Strategic knowledge would have its just price and entitlement. The chemical industry of Germany was reaching its European zenith. William recognized the importance of developing an equivalent industrial base in England. He relinquished his post at Radcliffe without hesitation, and founded his own private chemical laboratory. His expressed purpose was to follow von Hoffmann's example. Later that year (1855), at the age of twenty four, William married. His wife, Ellen Humphrey, was pleased to remain in London as he expanded his own privately owned experimental laboratory in a section of his home in Kensington Park Gardens.

#### **ELEMENTS**

His astute enterprising aims had as their first order of priority a self-sufficiency without aristocratic rule or restriction. He would be independent and self-employed. "Owe no man anything" was the lesson. As his father was successful in the art of tailor craft, so he would reach independent success in the scientific profession. Von Hoffmann had been a good and thorough master. He taught him well by example, and had highly favored and encouraged William. I am sure he insisted on calling him "Wilhelm." In the isolation and efficient production of new

chemical substances, there were new fortunes to be made.

William Crookes saw that this theme and atmosphere so contributed to the German industrial powerbase that to deny it was foolhardy. Worse, it might someday prove deadly. Competitive Germany had thoroughly recognized these scientific potentials, and were quick to implement every fruit of technical achievement. His strong opinion was contained in the notion that scientific labor should be justly and amply rewarded. Valuable scientific knowledge was not a free tithe, no mere resource. His nation needed to implement the free enterprise theme as rapidly as possible.

Exploitation was no longer to be tolerated. The German approach did not prohibit the exchange of information between and among persons of different class. Not so in England, where scientists and their technologies were viewed by royalty as exploitable resource for the personal extension of profit and power. By the end of the same decade, Germany would outstrip the English industrial facility on several key grounds. By the time the aristocrats were roused from their self-deceiving slumber of peace, the whole of Great Britain had been shaken to its patristic roots.

Throughout the early history of this laboratory, Dr. William Crookes devoted himself to the discovery of industrial applications. The industrial production of new products was his aim, but this goal did not prevent him from exploring the natural world of chemistry. He was forever investigating new families of chemical substances which might prove in the future to be of strategic industrial importance. This native curiosity permitted him to be first in the discovery of new elements, compounds, and their possible use in some burgeoning industrial complex. In 1859 he initiated and directed the publication of *The Chemical News*, a scholarly journal whose aim it was to stimulate both the professional and amateur chemists into a new industrial revolution. He remained its principle editor for several years.

Serious theoretical and industrial information thus flowed from him and to him. The flow of such material was timely. In this theme and approach, Dr. Crookes explored the strange properties of selenium, a new "light sensing" element. The year was 1861, and selenium was the focus of several intriguing discoveries. Photoelectric effects were observed, and the extreme sensitivity of selenium to various spectra promised new industrial frontiers. It would therefore be imperative to be the principle provider of information on the topic area. In the eventuality of new applications, industrialists would want ready information on the manufacture of selenium components. William was always in the lead, especially when the more mystifying aspects of Nature made themselves apparent.

His intuitions were well rewarded when, in the next decade, selenium became the principle means by which certain highly desirable electrical analyzing instruments were made possible. In the process of studying selenium, William succeeded in discovering a new element. The element thallium was discovered in 1861, the result of a spectroscopic study. He recognized its unique strong green spectral line. Here was the word which Faraday himself had spoken. Here was the rarest of privileges, an honor granted to a very few individuals. How curious and fortunate that he had been chosen to assume such an exalted scientific poise in science history!

The discovery had its industrial merits. Lucrative merits. Poisonous metallic thallium, a bluish-white element, was utilized as a catalyst in the industrial manufacture of benzene and antiknock fuels. In its other chemical uses, thallium found prime application in the manufacture

of flint, glass, artificial gems, scientific thermometers, mineralogical washing solutions, and pyrotechnics. In the following years Dr. Crookes developed sodium amalgamation methods for the commercial extraction of gold and silver from crushed ores, devised laboratory-worthy spectrum microscopes and polarization photometers, compiled planetary and stellar spectra, perfected astronomical photography, and hunted for new planets and asteroids. In 1863 Dr. Crookes was elected to the Royal Society as a Fellow.

#### WHITELIGHT

It was while investigating certain properties of thallium in vacuum (1873) that he chanced to observe a unique motional effect in a delicate torsion balance. The mere presence of light, whether from the sun or an artificial source, made impossible the routine task of weighing the element in vacuum. Dr. Crookes saw that, as soon as light was admitted into his balancing apparatus, the delicate device moved quite violently. In some cases, the torsion balance struck its containment walls. The mere presence of light so destabilized the delicate quartz

fiber of his torsion balance, that he paused from this chemical study.

With external sources of illumination, he found that vacua of 40 millionths atmosphere allowed the most powerful rotation in the vanes. With internal sources of radiant heat, he found it possible to obtain much stronger rotations. These were observed (over 30 rotations per second) in hydrogen gas at 0.1 millionth atmospheres...a remarkable figure! The observation of movements with vanes coated on both sides in lampblack...a complete conundrum...could find few good explanations. Nor could the mechanistic theory attempt ad-

equate explanation of the other numerous anomalies found in his study.

Deeper inquiry into the "mechanical action of light" led to a minor upheaval in the world of physics. The philosophical debate which discussed the "light pressure" remained a focal point for years, since a reversal of theoretical expectations was obtained. The fundamental anomaly which Dr. Crookes and others observed was that "light pressure" caused the repulsion of dark bodies, and the attraction of reflective bodies. This basic riddle occupied the thoughts of many physicists for several years. Dr. Crookes published his findings in a long series of articles and scientific essays; where the variables of vacuum, substance, vane shape, even or uneven surface heating, and applied spectral energy were each studied with the utmost care.

The complete record of his meticulous research may be obtained in collated form (J. DeMeo). As regard to the anomalies which he observed, Dr. Crookes was bold and decisive. "In some of the observations, the results accorded with theory; and although I could explain most of the anomalies, there were irregularities which seemed to point to another influence..." Another influence? To what influence did he possibly refer? He had eliminated all of the mechanistic variables with elaborate shields and baffles. In fact, these inconsistencies were never solved and, with attempts to give answer according to the mechanistic theory, were entirely unsatisfactory.

The prevailing view among physicists was that the opposite vane rotations and other behaviors were all the result of molecular bombardments within the glass bulb. Varieties of mechanical dynamics (gaseous flow, viscosity, "creep," recoil) along vane surfaces were cited in explanation of each anomalies. But each such puzzle required new and (sometimes self-contradicting) applications of the mechanical principles. The glaring inability to provide satisfactory explanations for key phenomena lent an increasing number of scholars to assail the mechanistic view itself. Accusations of the obvious deficiency in this view, especially in explaining the newly discovered phenomena of the day, represented the first in a series of major failures.

The mechanistic view was shown to be inadequate in such cases as regards various phenomena of light and other radiant forms. The trend to save "mechanism" continued through the Twentieth Century. Renewed interest in this episode of scientific inadequacy has evoked

> response from several researchers such as Dr. James DeMeo. This esteemed researcher and author considers the strong likelihood that such anomalies are entirely due to more vitalistic influences. The possibility that the anomalous results of Crookes were entirely derived from external influence of his own presence (i.e. of biological energy) has provided the most potent reevaluation of the phenomenon to date.



#### TOYS

In all of these important considerations we see that the mechanistic view and its expla-

nations usually results from highly valued topical effects of least importance, caused by more dominant fundamental energies of Nature. Yet it is well known that Sir William inclined more toward these vitalistic possibilities, having observed motions on his own approach to the device. And, while never publishing his deeper inclinations on these issues, it is known that his study of paranormal forces were commendable in his employ of numerous sensitive apparatus...not the least of which was his Radiometer.

The debate on these "light pressure" anomalies prompted Dr. Crookes to bring the effect out of the academic halls and into the public forum. His development of the Radiometer for serious scientific use was a matter of scientific record. But this serious application did not limit his wonderful imagination from teaching children of its marvels. So delightful was the Radiometer, or "light mill" as he often called it, that an inexpensive version was developed for toy shoppes. The small scientific "toy" has remained both a curiosity and amusement since its first appearance. Of it Nikola Tesla gave fond homage, referring to the delicate design as "the jewel of motors."

This first of many such "toys" became a distinct Crookes trademark, an ultimate "soft" vengeance. "In this realm of marvels, this wonderland toward which scientific enquiry is sending out its pioneers, can anything be more astonishing than the delicacy of the instrumental aids which the workers bring with them?" Dr. Crookes was relentless in his provocation of the scientific aristocracy. His deliberate conception and deployment of a great many such "toys" was directed at their fancies. He would haunt both them and their children...with scientific "amusements" and "toys." Crookes was the great scientific toymaker, but delighted in presenting them to those who would acquire them as curiosities.

Simultaneously cunning and humorous, the designs produced for his laboratory a steady source of capital. They also accomplished their primary task of preserving the various vitalistic conundrums everywhere. Crookes was especially delighted that the aristocrats perceived these as amusing devices to purchase. With his guidance, and the "skillful manipulations of my friend, pupil, and associate, Mr. Charles H. Gimingham," the manufacture of a vast laboratory demonstration assortment was offered to the scientific community at large. Both in England and abroad, in America, sales of these marvelous and glittering Victorian designs brought in an important steady revenue. These designs were distributed in North America by James Queen and Company, a scientific supply house based in Philadelphia.

#### **BLACK SPACE**

Sir William's scientific approach differed from the growing convention. His approach appealed to the philosophical aesthetic, rather than to the engineering theme. His demonstrations were never intended to represent miniatures for technological exploitation. In the Victorian tradition, experimental models and demonstrations represented philosophical statements. Each was made to consolidate some principle, to embody an idea. Experimental models were statements in solid form. Such devices were therefore always referred to, not as industrial appliances, but rather as "philosophical toys"; his elegant and final answer to each challenging polemic.

Sir William delighted in contriving such designs in order to provide wordless proof of each thesis. In 1877, he began his most world-renown series of researches into the discharge of high voltage electricity through spaces of very high vacuum. The automatic mercury pumps of Herman Sprengel were much improved on behalf of Dr. Crookes, again by Charles H. Gimingham (1877). It was this improvement which stimulated the new and thrilling research, since prior to this time, the reasonably attained vacua were insufficient to produce the effects which were historically first obtained by Dr. Crookes.

His first major discovery was one typical of the style and flair by which he would be best remembered. Bringing the vacuum to its ultimate degree, he observed a mysterious "dark space". This was the metaphor which most captivated his scientific attentions, a symbol and representative of space itself. But what was in that dark space? He called again for the lights to be withdrawn. They had seen his preliminary demonstration of phosphorescence, but had they comprehended the meaning of those phenomena? Had they pierced through to his exact intimations concerning that phenomena?

Were they able to realize that no phosphorescence, no light is ever emitted unless substances are completely wrapped and permeated in a blanket of absolute darkness? Did they appreciate that every condition of earthly light was first predicated in every instance by a permeation of radiant black space? His voice again rang into the dark space of the Hall. "I will endeavor to render the 'dark space' visible to all

present. Here is a tube having a pole in the centre in the form of a metal disk, and the other poles at each end." The large barreled tube which he stood near on the table was fitted with a disc-shaped central cathode, facing two opposed anodes; one at each end. Current was applied,

"When the exhaustion is good and the electrical pressure is high...the dark space is seen to extend for about an inch on both sides of the cathode." The luminous gas residue withdrew to the anodes, being tightly squeezed upon their metal surfaces. But the dark space remained. Clearly, all matter had been forced away from this space, otherwise it would be glowing with light. In the dark space were rays whose power"...radiating from the pole with enormous velocity, assume properties so novel and so characteristic as to entirely justify the application of the term borrowed from Faraday...that of Radiant Matter."

There were those who had always mistakenly believed that his Radiant Matter was simply composed of electrons, even as J. J. Thomson had sought to prove. But Sir William could never have disagreed more. To him, the dark space was filled with "dark light," the precursor to every form of light known to the world of physics. It was the energetic presence of this dark light which provoked the phosphorescence of any substance placed within that dark space. As he was about to prove again, the dark space was completely devoid of inert, or massive particles. He would now separate the negative charges from the neutral dark light particles. The next few demonstrations were therefore designed to highlight his original statements concerning cathodic rays and precursory light.

The younger and more acrid members of the Society, the posh appointees of fashion and advantage, remained completely unimpressed with his outpourings. Their affections forever fawned among the acceptable conventions, since this poise always seemed to preserve and a greater social favor...an assured measure of decorum. For them, learning was unimportant. Face and keeping face was all.

Nevertheless, he remained courtly, noble, and somehow impossible not to watch. There was an unmistakable luminosity about the man which was also difficult to deny. It seemed to brighten whenever he spoke. "It is not unlikely that in the experiments here recorded may be found the key of some as yet unsolved problems in celestial mechanics...we may argue from small things to great." The audience saw his vague outline moving to the far side of the proscenium. They turned to see. Sir William now stood among a select series of vacuum tubes, also now decades old. With these large demonstration vessels, he would provoke his detractors into a renewed revelation of Radiant Matter.

#### **EMERALD**

He opened this section of the lecture with a simple statement. "To those, therefore, who admit the Radiant form of matter, no difficulty exists in the simplicity of the properties it possesses, but rather an argument in their favor." He stood behind a second apparatus, a large V-shaped vacuum tube, and applied the voltage. "You see that the whole of the cathode arm is flooded with green light, but at the bottom stops sharply, and will not turn the corner to get to the anode.... Radiant Matter absolutely refuses to turn a corner." By this it was understood that cathodic rays did not behave like ordinary electric charge, which would have eagerly sought the positive terminal. Many imagined that the high terminal velocity, imparted to these rays on ejection from the

cathode, actually constrained the rays from seeking the electropositive terminal. They remained unconvinced that the rays were "rays of dark light."

A third large bulb stood near this V-shaped tube. This bulb had a cathode which had been sealed in the side. Two anodes had been sealed at opposing angles and at differing distances from this cathode. The current was applied. "Notice," he said, "the rays fall on the opposing side of the bulb, and produce a circular patch of green phosphorescent light. As I turn the bulb round you will all be able to see the green patch on the glass. Whether I now electrify the top or bottom anode, the rays remain unmoved from their path.... Radiant Matter darts in straight lines from the negative."

The positive proximity to the ray path did not alter the beam in the least. Were these the light mass particles claimed by Thomson and his adherents, this ray path would have bent to the closer anode. But it did not. He beamed nearly as bright as one of his tubes. Now he turned to a very large diameter tube. His fourth proof for the existence of cathode light rays. It was long, fitted at one end with a split cathode. At the other end was a single anode. Through the center of this tube, a phosphorcoated card was placed for the visual inspection of cathode rays in their progress across the space. "If the streams of Radiant Matter are simply built up of negatively electrified particles, then they will repel one another. But if the streams are neutral, then they will proceed independently of one another."

Now switching the current on, two straight and brilliant green rays traced their thin paths across the card. The surprised reaction in his audience was delightful! Both rays moved independently of the other. Each touched the anode separately. Though ejected from the cathode, such emission did not conclude negative charge. Here was the proof. Sir William showed again that Radiant Matter was a neutral, lightlike form of energy.

A fifth globe used a large concave cathode with an opposed planar anode. Between this cathode and its small anode, a strip of silver-white metal was poised on a sealed support wire. The globe was very large in size. "The bright margin of the Dark Space becomes concentrated at the concave side of the cup to a luminous focus, and widens out at the convex side. When the dark space is very much larger than the cup, its outline forms an irregular ellipsoid, drawn in toward the focal point... the whole appearance being strikingly similar to the rays of the sun reflected from a concave mirror."

"You will notice that the rays which project from the cup, and which cross in the centre, have a bright green appearance...the intensity of the color varying with the perfection of the vacuum." That strange green light, what equally bizarre properties it displayed! "The cup is made of polished aluminum, and projects the rays to a focus. In this tube, the rays focus on a piece of iridio-platinum, supported in the centre of the bulb." The globe was ingenious, an embodiment of genuine insight. Those who long believed the inadequacy of the Victorians regained a lost admiration.

"With only a slight application of the current, the interposed metal strip suddenly became white hot. I increase the intensity of the spark, the iridio-platinum glows with almost insupportable brilliancy, and at last melts." This demonstration showed a remarkable and uncommon property of Radiant Matter. In its apparent ability to defy the Faraday electrostatic laws, it could not be composed of negative particles. Leaving internal surfaces in converging lines, electrons could never be brought to such a tight focus without producing noticeable repulsions.

This radiant behavior more exhibited the characteristics of light than particles of matter. The radiant extension of the material shape into the vacuum was visual. It took the form of straight and continuous lines. On closer examination, and in taking consideration of electrostatic principles, here was a very different kind of ray than that which J. J. Thomson quantified.

#### RADIANT MATTER

Sir William again called for the lights. His coup-de-grace was a large and bulbous "electric" Radiometer. This demonstration Radiometer gave a most remarkable demonstration of the mechanical energy exerted by the dark space itself, a singular anomaly. "The best pressure for this Electrical Radiometer is a little beyond that at which the Dark Space extends to the sides of the glass bulb." He attached the leads with ginger delight. Here was a "toy" which he especially enjoyed sharing with others. "On continuing the exhaustion, the Dark Space further widens out and appears to flatten itself against the glass, whence the rotation becomes very rapid." Current was applied, and the vanes spun themselves into a blur.

"You perceive the dark space behind each vane, and moving round with it?" When the power was increased, the blackness covered the vanes completely, and the vanes began to rotate into an amazing blur. Here was true light pressure. Light pressure in the apparent absence of any material agency. In this device, motion required the mere presence of the dark space. But what was in this special space? Was it the literal extension of the cathode into the ultravacuum? Was this a revelation of the continuity of matter in space? How did vacuum and electrostatic charge now combine to expand the material volume of the cathode, revealing it as force? This was nothing less than the Reichenbach thesis, where matter and its diverse qualities extends throughout space.

"Here we have actually touched the borderland...where Matter and Force seem to merge into one another, the shadowy realm between Known and Unknown, which for me has always had peculiar temptations. I venture to think that the greatest scientific problems of the future will find their solution in this Border Land, and even beyond; here, it seems to me, lie Ultimate Realities, subtle, far-reaching, wonderful." What an epithet! One might well draw the title for a scientific journal from his words.

The vacuum tubes thus provided a most potent visual means for elucidating each of these concepts. This visible proof, which the mind grasped, offered the noisy intellect perhaps more analytic substance to disannul. But the combined effect of the performance would force the intellectual process to relax, while the holistic sensibilities once more brought in true and whole vision. The analytic process simply disintegrated the world into nothingness. This qualitative grasp represented a larger consciousness. As often as he shared this demonstration model, his audiences remained completely enthralled. He knew the all too human need for colors, sounds, and motions...for sensation. Sensation, whole experience, was the proper use of the mind.

His experiments had revealed to him that matter and material aggregates were supported in their very existence by non-inertial form. This what the fourth state of matter represented, and this is precisely why it was so vehemently rejected. Here was the heart of Vitalism yet again revealed! In this revolutionary view, molecules and atoms vibrated about a lattice of "continuous matter." The mobile particles of inertia were simply associated with these continuous solids, and were not themselves the real forms we knew as matter at all. Platonic solids

contaminated by inertia! Collectively, the demonstration was a marvel, a true philosophical argument in the best Victorian tradition. His last display caused quite a commotion.

The younger aristocratic members, those who most sought to maintain their composure, were now shifting ever so slightly in their seats. He noticed this with glee. How tragic! They refused to so much as grant him any facial expression whatsoever, a too common conceit. Noticing the ill-cloaked irritation of his young aristocrats, Sir William chuckled. He did not care so much that they were vexed, as much as he was delighted that his point pierced their defense. For them, his beaming joy was detestable. To this animosity they were entitled. Nevertheless, amor vincit omnia!

Were they aware of their German counterparts, whose industrial complex was about to march across Europe to the very borders of England? Alas, theirs was a sleep of ages, from which they would soon awaken in frightful need. But there would now be no prating command for protection and service. Science and other working class "servants" would now exact their wage, their price. Among the burgeoning scientific class, those who had suffered so much indignity, there was no urgent obligation to the dwindling Empire. The free option to emigrate to North America was now forever their chief tool of threat. And if it was not possible to maintain the common human right in England, there was dignity, honor, and profit to be made over that westwardsea horizon. Command would remain among those scientifics, those laboring minds whose experience in life had not known idle advantage.

#### RARE EARTH

Sir William had undertaken a thorough research on rare earth elements in 1883, a field of study which would have enormous strategic and industrial importance in the mid-Twentieth Century. His original research in this capacity brought him to a consideration of radioactive phenomena and the possibility of elemental transmutation, yet another term which the proud desperately wished to eradicate from the scientific register.

But Dr. Crookes was the first to observe that elements contain isotopes, noting that pure elements were composed of differing atomic weights (1886). His conception of transmuting the elements was therefore founded on sound reasoning, and clarified observation. Each of these notions were in part realized with the discoveries of Ernest Rutherford.

Sir William began to consider the possibility that all matter, all elements, were "built up" by a primordial æther. Where would such a primordial æther be found? Sir William held out his hand toward his tubes, emphasizing the effects which had just illustrated the heart of his dissertation by wordless example. His glassy globes and bulbs, with their twirling little mica vanes, now sparkled in the eyes of those who watched them almost as much as did his rimmed glasses!

The prevailing "old school" view was indeed here, embodied before them. Sir William was a sprite, a truly "æthereal" character! Cheerful, merry, beaming, brilliant, lighter than air, he appeared to be aglow with the same white light seen in his mineral tubes. Equipped with his collection of unearthly globes and radiant crystals, he glittered a starry message of dreams... without words. Most realized that they had, quite unawares, fallen into one of the delightful little games of the grand old gentleman. Each slowly saw where he was guiding their vision. A few resisted, could not follow. They tuned their hearts away, and were

instantly recognized. He was aglow, spying them out as if by magic. Most enjoyed the prospect of allowing him to guide their mind's eye, and were drawn into his hopeful sphere of influence for a few more moments.

Those who best remembered the melody of his voice and life remembered a sense and mood from another time, from childhood's forgotten world. The old gentleman spoke, a dark line from Royal Society history. "Faraday pointed out that matter existed in four states...solid, liquid, gas, and radiant. He stated that as matter ascends in the scale of forms...it does not cease at the gaseous state. But the greater exertions Nature makes at each step of the change becomes greatest in the passage from gaseous to the radiant form..." He was not now averse to making formal statements concerning the luminiferous æther. Besides the fact that they had spent the evening observing effects-in-miniature of this æthereal gas, it was also an air in which he seemed to live and move quite comfortably.

Indeed, "the phenomena in these exhausted tubes reveal to physical science a new world...a world where matter exists in a fourth state, and where the corpuscular theory of light holds good." He called attention to the strange green light, that which was observed with each manifestation of cathode rays. The green light had peculiar and persistent qualities. "This green phosphorescence is a subject which has occupied my thoughts, and I have striven to ascertain some of the laws governing its appearance." This statement sent some of their minds reeling with implications.

"The spectrum of the green light is a continuous one... no difference can be detected by spectrum examination in the green light, whether the residual gas be nitrogen, hydrogen, or carbonic acid." Most physicists had concluded the green light to be a property of the bombarded glassy matter. Its spectral lines were taken as proof of the "excitation" theory. But now Dr. Crookes was highlighting his spectral study, finding the curious constancy of that light regardless of gas or glass. Was this not some indication of the existence of a new "ultragaseous" element?

For some, the very admission of an ultragas was instantly recognized. But the lecture had perfectly led to this realization, and was whole in every aspect. From these elevated vantage points, one could hardly argue the existence of the luminiferous æther!

He continued, emboldened by the sense that the audience had entered that absorptive stage, where deep and permanent impressions could be made. "Between the gaseous and the ultragaseous state there can be traced no sharp boundary; the one merges imperceptibly into the other...nor can human or any other kind of organic life conceivable to us penetrate into regions where such ultragaseous matter may be supposed to exist." Most mortals at least could not endure the æthereal air as he so effortlessly did.

"The position of the positive pole in the tube scarcely makes any difference in the direction or intensity of those lines of force which produce the green light...and this green light is distinguished from ordinary light...it cannot be wrong to here apply the term emissive light." The glowing globes had each spoken the thesis for him. He merely repeated those statements which he had published so many years ago. But no matter now, all minds asked the same question. All knew the identity of that pure light which issued forth from his highly electrified cathodes. There could be no question now. Those whose minds now grasped the whole message of the one who stood before them, fell silent. Why had no one ever considered these facts? One saw around his

words, and conceded without a single protest. The unmistakable ring of truth.

Sir William suddenly appeared to have now satisfied himself that his message was well received. A teacher could not hope for more than this. For a few brief moments, the Hall felt silent.

"Time has not allowed me to undertake the whole of the task so vast and so manifold. I have felt compelled to follow out, as far as lay in my power, my original ideas. To these collateral questions, I must now invite the attention of my fellow-workers in Science. There is ample room for many inquirers." It was not until a few began to clap and shout sharp words of approval that Sir William looked down once more. He smiled again and looked among them all. Standing among his glittering and delightful toys, he nodded his thanks at their approval. The green light, the melodious voice, the twinkling eyes, the silvery air, all remain suspended in memory.

Sir William Crookes left the spinning, glowing, scintillating magic of his wonderful little toys in the springtime. Nikola Tesla never forgot the date when his dear mentor and friend departed the material world. Shedding aside the crusader's lantern to those in the scientific world, he took to the stars — the date was April 4, 1919. Those who grew to cherish his memory lifted his lantern before it fell into the relativistic dust. In so doing, one felt a twinkling joy where there should have been sadness. The great man's passing left a sparkling tracework, and yes, like the joy which suddenly quickens and stimulates in the midst of night, it twinkles still!

All quotes were taken liberally from the following excellent sources:

- (1) Selected Reprints of Articles Related To The Mechanical Action Of Light And The Radiometer, Sir William Crookes, (compilation reprint) by James DeMeo, Natural Energy Works, 1994. Available from BSRF.
- (2) The Phenomenon of Spiritualism, Sir William Crookes, London, 1874, The Quarterly Journal of Science, (reprint Health Research, 1972).
- (3) Radiant Matter, Sir William Crookes, Nature, 1879 (reprint Electric Spacecraft Journal, 1995). Available from BSRF.

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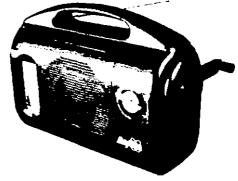
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# The Ohsawa-Kushi Transmutations

# by Robert A. Nelson

UCLEAR physicists bombard targets with high-energy particles in order (or chaos) to prove the schematic of their mindset with appropriate experimental results. In recent years, however, the discovery of cold fusion has quite upset the world view of conventional physicists, who generally deny the possibility that Nature allows for other means of transmutation. Yet, there is considerable historical evidence that many types of transmutations have been accomplished without particle accelerators, long before Pons and Fleischman announced their discovery of cold fusion. There is so much credible documentation of low-energy transmutation that, in the words of Rupert Gould, "did it relate to any more probable event, we should be compelled either to accept it or cease putting any faith in recorded testimony."

Among the many examples that can be cited, "biological transmutation" is the best developed and well-known. About forty years ago, Dr. Louis Kervran presented the idea that sodium, potassium, and dozens of other elements change into each other under certain natural conditions in the mineral, vegetable, and animal kingdoms. Biological transmutations have been demonstrated, crucial experiments replicated, and the theoretical principles verified by many scientists who are finding new industrial, medical, and agricultural applications of the discoveries.

Inspired by the pioneering work of Dr. Kervran, Dr. George Ohsawa sought to transmute sodium into potassium in vitro. The method revealed itself to him in a symbolic dream. Thus inspired, Dr. Ohsawa and Michio Kushi, et al., constructed an experimental electric discharge tube with copper (Yin) and iron (Yang) electrodes and a valve through which to draw a vacuum or admit oxygen (Fig. 1). The first transmutation with this equipment was achieved on June 21, 1964. After applying 60 watts of electricity for 30 minutes to heat sodium to a plasma, a molar equivalent of oxygen was introduced. Viewed with a spectroscope, the orange band of sodium gave way to the blue of potassium, according to the formula:

$$^{23}$$
Na +  $^{16}$ O =  $^{39}$ K

Analysis of the reaction product confirmed the result and revealed an unexpected extra: a trace of gold was produced by the combination of Na, O, and K with the Cu and Fe electrodes. Several different metals were tested as electrode materials. Neon and argon atmospheres were found to enhance the yield of potassium and other elements. External heating of the reaction tube also served to ionize the sodium.

In his book Transmutations A Faible Energie, Louis Kervran mentions that "Professor [Masashiro] Torii, on a circuit designed by Prof. Sakurazawa, and under the control of Prof. Odagiri, observed in the spectroscope the passage of sodium to potassium upon the adjunction of a small quantity of oxygen to sodium vapor....

"Prof. Torii [of Musashino Institute of Technology, Tokyo] has informed me of having observed on 21 June 1963, in the spectroscope, the passage of sodium to potassium, the disappearance of the yellow line of sodium being replaced by the red-violet ray of 7699Å (angstroms)

potassium; the experiment was repeated June 22 before five scientists."

Dr. Louis Kervran also cited the example of, "in the prodution of steel in electric furnaces, the incomprehensible appearance of boron. We see now that we cannot exclude, under the effect of a powerful electric field and of the high temperature of these furnaces, the 'reproduction' of carbon from the loss of hydrogen and in keeping with: C - H = B." Dr. Kervran recommended the following experiment: "The experience is simple to realize, as it suffices to take a plate of steel — or of iron — an anode of magnesium, place them in a jar containing distilled water rendered conductive by a salt of magnesium — in order not to introduce any metallic ion other than magnesium, and these two electrodes are reunited by a metal wire, to the exterior of the jar: thus they realize (in part) a battery with magnesium at the negative, iron as positive; through the production of hydrogen at the electrode, magnesium is at a potential of 1.9 volts more negative than iron. Leave it for two or three months; from time to time add a little distilled water in order to compensate for evaporation. On analysis, calcium is obtained... in an operation in which calcium was not introduced!" The calcium (as oxide) accumulates in scales on the cathode.

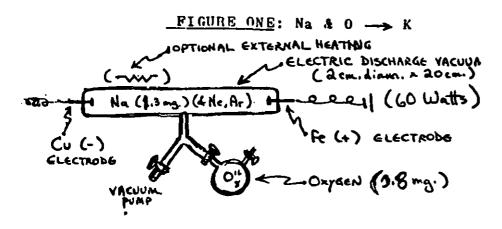
Kushi and Ohsawa, et al., proceeded to develop their process for industrial-scale production. They estimated that potassium could be manufactured for 1% of the current price. In a correspondence to Ken Jones (12 October 1980), Michio Kushi stated that, "After George Ohsawa and myself succeeded in producing K out of Na and O... we presented the experiment to several chemical corporations. At that time, Pfizer International became most actively interested. We had conferences on several occasions; however, soon after we decided not to become involved with these corporations, as a result of the considerations of the vast effects this would have on the industry." The researchers also had no patent with which to protect their interests.

Ohsawa and Kushi then turned their attention to the manufacture of steel by transmutation of carbon and oxygen according to the formula:

$$2(^{12}C + ^{16}O) = 2.^{28}Si = ^{56}Ni = ^{56}Fe$$

The experimental arrangements worked as predicted, and produced several other elements from combinations of C and O with atmospheric nitrogen, etc. Strangely, "the Fe produced by this transmutation is stainless; it does not rust easily. Also it reacts much less to heat than does ordinary Fe.... All results of the transmutation for Fe have been carefully examined and analyzed by several methods, as: (1) magnetic inspection, (2) spectroscopic analysis, (3) chemical analysis, (4) examination by reagents, etc., and confirmed by authoritative testing agencies." The new form of iron was called GOS (George Ohsawa Steel). The experimental method is as follows:

"Method 1: Transmutation in Air (Fig. 2) — Two graphite crucibles (approx. 2.5" x 5") cover each other top and bottom. The upper crucible has a 10 mm hole, surrounded by a ceramic ring, which acts as an insulator. Into this hole a carbon rod (0.25" diam.) is inserted until it reaches the 2 or 3 grams of carbon powder placed at the bottom of the



lower crucible, which has one or two small holes at the lower part of its side wall for circulation of air. An iron base placed under the lower crucible acts as another electric pole. As the carbon rod approaches the powder, the electric arc arises. Continuing the operation for 20 to 30 minutes, the carbon powder changes to iron. In this experiment, the applied electricity is about 35 to 50 volts, and 8 to 18 amps, either AC or DC.

"Method 2: Transmutation in Water — Using two carbon rods (0.25" diam.), create an electric arc between them, striking them on one another in water. This operation is performed for 1 to 5 seconds. Then, brown-black metallic powder (which contains iron) falls down to the bottom of the water.

"Method 3: Transmutation in Air — Carbon powder is placed on a copper plate, approximately 12" long, 6" wide, and 0.5" thick. This plate works as an electrical ground. A carbon rod (0.25" diam.) used as the other electrical pole, is struck repeatedly to the carbon powder on the plate, producing an electric arc. The carbon powder changes into iron.

"During the process of this transmutation, nickel is temporarily produced as a short-lived radioactive isotope. The degree of transmutation from C and O is approximately 5% to 20% immediately, with a larger percent of transmutation occurring gradually in the air, which has the effect of cooling the metallic powder to below room temperature."

In another experimental configuration (Fig. 3), the reaction was cooled by dry ice. When sparked with carbon rods, the CO<sub>2</sub> vapors also yielded iron, etc.

In 1994 R. Sundaresan and J. Bockris (Texas A & M) reported that they had observed "Anomalous Reactions During Arcing Between Carbon Rods In Water:

"Spectroscopically pure carbon rods were subjected to a carbon arc in highly purified water. The arc current varied from 20 to 25A and was passed intermittently for several hours. The original carbon contained ~ 2 ppm Fe. The C rods remained cool to the touch at > 2 cm from their tips. Adsorption of iron from water or the surrounding atmosphere was established as not being the cause of the increase of iron. There is a weak correlation between the iron formed and the time of passage of current.

"When dissolved O, was replaced by N, in the

solution, no iron was formed. Hence, the mechanism

 $2^{.12}C + 2^{.18}O \rightarrow {}^{56}Fe + {}^{4}He$ 

was suggested as the origin of the iron. The increase in temperature of the solution was consistent with expectation based on this reaction."

Also in 1994, another group of researchers (M. Singh, et al.) at the Bhabha Atomic Research Centre (Bombay) reported "Verification of the G. Ohsawa Experiment for Anomalous Production of Iron from Carbon Arc in Water:

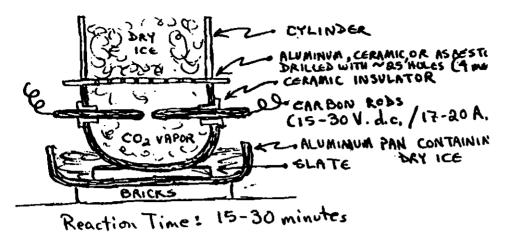
"A direct current arc was run between ultrapure graphite electrodes dipped in

ultrapure water for 1-20 hours. The graphite residue collected at the bottom of the water trough was analyzed for Fe content by a conventional spectrographic method.... The Fe content was fairly high, depending on the duration of the arcing.... The results showed large variations in Fe content (50 to 2000 ppm) in the Cresidue. In the second series of experiments... with the water trough fully covered, the amount of Fe in the carbon residue decreased significantly (20-100 ppm). Here also there were large variations in the iron concentration in the residue. although the experiments were performed under identical conditions. Whether Fe is really being synthesized through transmutation from C and O, as suggested by George Ohsawa, or is getting concentrated to different degrees through some other phenomenon is not currently clear. The Fe in the C residue was also analyzed by mass spectroscopy for the abundance of various isotopes.... Besides Fe, the presence of other elements like Si, Ni, Al, and Cr was also determined in the C residue, and it was found that the variation of their concentrations followed the same pattern as that of Fe."

In 1996, Kenjin Sasaki reported his successful experimental replication of the carbon arc production of iron. He used a 99.9999% pure graphite crucible and rod with a 100V/10A electric welder. The crucible was cooled. The arc (8-10A) struck high-purity carbon

# FIGURE TWO: 2 (C & 0) -> Fe CARGON ROD (O.25'DIAM.) CERAMIC INSULATOR CRUCIBLES (Q.5", 5") AIA HOLES CABON POWSER IAON PLATE INSULATOR (35'-50 V./8-18 A. A.C./D.C.)

#### FIGURE THREE: 2 (C & 0) ---> Fe



powder 4 times for 1 minute each time. The yield of iron was recovered with a magnet. Further experiments conducted by C. Akbar (Kushi Research Institute) "indicate that voltage potential and current density are important in the formation of iron in chemically pure carbon."

Toby Grotz also conducted this experiment and reported the results in detail in 1996. He tested activated charcoal, activated carbon, and coal. No iron was produced from charcoal, but activated carbon did yield magnetic material. Tests were performed with copper and aluminum plates and rods to eliminate the possibility that the carbon rod and copper plate might be releasing iron. Analysis of the results showed that "This amount [0.22 gram] of iron is an order of magnitude less than that wich occurs naturally in the sample.... The excess weight appears to be due to magnetic material that is part of or encased in particles of carbon.... [T] here is a point at which no more magnetic material may be removed from the sample using the arc discharge process. It is proposed here that the high current density of the arc discharge magnetizes magnetic material that exists within the particles of the activated carbon. This then allows separation of the magnetic material from the sample using a magnet...."

J. Bockris and associates replicated the experiment using the underwater arcing method, and found only microgram amounts of iron after 24 hours. When the experiment was repeated with the reaction vessel covered to exclude air, no iron was found.

Those results prompt this writer to suggest that at least some of the reported yields of iron might be due to the arc coagulating ORME's (Orbitally Rearranged Monoatomic Elements) existing in the Earth's atmosphere. ORME's are virtually undetectable by all conventional methods except infrared analysis, which can distinguish a certain characteristic doublet. As David Hudson discovered in the 1980's, ORME's can be converted to metallic form by certain processes involving carbon or nitrogen, which are used to insert an electron in the d orbital shell of the atoms. The complete process is described in his Australian patent (available on the Internet).

Dr. Joseph McKibben has published his suggestion that the transmutative production of iron from carbon may be due to what he calls a subquark particle, which has a mass of about 1.15 nucleons. McKibben states that the subquark, "when attached the 4He seemed to me to be an ideal candidate for an ideal catalytic agent," which he goes on to

explain in detail.

In the 1980's, Michio Kushi resumed his experiments with the "aim of finding methods of mass production.... At that time I shall be able to consider how to present to the world the transmutation of the atom using the principles of Yin and Yang for the future world industry.

"The transmutation of the atom can be achieved if elements are changed into the state of plasma, and if these elements are well understood in their antagonistic and complementary relations to other elements, according to the principles of Yin and Yang.

"The atomic number, mass, density, and gravity, physical reaction to temperature such as melting and boiling points, chemical reactions to other elements. re-

actions to specific environmental factors, such as ultraviolet and infrared wavelengths applied to the elements, as well as spectroscopic color analysis — all of these characteristics of the atom can contribute to classify the atom into the Yin group or Yang group....

Classification	Yin	Yang
Tendency	Expansion	Contraction
Position	Outward	Inward
Structure	Space	Time
Color	Purple	Red
Temperature	Cold	Hot
Weight	Light	Heavy
Catalyst	Water	Fire
Atomic	Electron	Proton
Elements	K, O, P, Ca, N	H, As, Cl, Na, C

"Nothing is solely Yin or Yang: everything involves polarity. There is nothing neuter. Either Yin or Yang is in excess in every occurrence. Large Yin attracts small Yin; larger Yang attracts small Yang. At extremes, Yin produces Yang, and Yang produces Yin. All physical forms and objects are Yang at the center and Yin at the surface."

In accordance with this Taoist atomic theory, "Hydrogen, the center of the atomic spiral, is Yang. It gathers particles to itself, forming the first octave of creation. The conditions become apparent upon studying the melting and boiling points of the first eight elements.

"Within the first octave, the greatest attraction is between carbon and oxygen, which represent Yin and Yang respectively. It is the fugate interaction of these two that form the other elements. Carbon is often replaced by boron. In terms of Yin and Yang, these are like brothers in that they react in similar ways in forming new elements."

#### The Fugate of Carbon

1 (C + O) = Si	5(C + O) = Ce
2(C+O) = Fe	6(C+O)=Er
3(C+O)=Kr	7(C + O) = Pt
4(C+O)=Cd	After Pt the elements
	becomeincreasingly Yin

Since the initial experiments were conducted by George Ohsawa and Michio Kushi in the 1970's, several other researchers have reported the same results and more, thanks to modern analytical equipment, computers, and communication. The worlds of low-energy transmutations have become much more accessible to us. New discoveries (cold fusion and biological transmutations especially) are being reported at an increasing rate in the scientific literature. Some inventors already claim to be producing rare elemens in bulk. Perhaps within a few decades we shall see the mass production of elements on demand.

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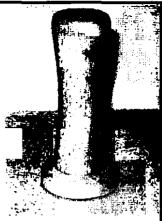
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# THE BORDERLAND EXPERIMENTER

EXPERIMENT: MAKING AN AURA COMPASS

By Gerry Vassilatos

#### MATERIALS:

Cold water faucet

Shears

Aluminum foil

Sewing needle

Small drinking glass

30 feet of thin wire

Wire strippers

Clear Tape

Small houseplant

Small iron rod

Carbon rod

Thick copper wire

An assortment of different materials (zinc, tin, nickel, silverware, gold, quartz, amethyst, minerals, etc.)

Aura studies provide the avid experimenter with many hours of edifying fascinations. The experiences gained in aura experiments always compels the reformation of scientific knowledge. Addressing the very foundations of existence, these experiments may serve as stimulants toward the redirection of personal philosophies. For those who hold a primarily mechanistic view of the world, aura studies will open a deeper and more qualitative perspective.

Rediscovering the aura, and the behavior of the same in experimental inspections, holds immeasurable importance. One confronts "being and essence" on a far deeper level. A few experimenters may have difficulty imagining it possible to actually measure or reveal the aura in its dynamic action. I believe the following series of experiments will prove otherwise, leading the Borderland Experimenter into new frontiers of consciousness.

#### **AURA MOTOR EFFECTS**

A remarkable series of discoveries proved it possible to show both the presence and polarity differences of the human aura through mechanical means. Motor effects show that a distant energy can cause a motional influence in an appropriate receiver. Aura motors suggest that usable motive power can be gotten from an application of biological energy, and this has been our ultimate hope.

Mechanical aura motors began appearing all over Europe from the middle to late Nineteenth Century. These devices took the form of delicate vanes and spinning wheels. In their best embodiments, these were usually poised on the frictionless jewelled bearings of the watchmaking trade. These experimental designs opened the discovery of many wonderful auric phenomena, not the least of which was the realization that auric fluctuations existed throughout whole regions of land.

The inventors of these aura motors may provide a familiar but elusive list to our readers. The names Thore, Boirac, Baraduc, Cazzamali, Joire, Tromelin, and Zollner are a small sample of inventors whose input in

this fascinating study are noteworthy. But, we can attempt some of these experimental designs ourselves, and at such an insignificant cost that it becomes ridiculous for us not to begin right away.

What we will see in the following installment is that the aura is a tangible presence; one capable of moving light objects around. In this series of experiments we will prove that psychokinetic phenomena are not only real, but that they are actually quite commonplace throughout our environment.

#### **PREPARATIONS**

The first aura motor which we will construct is a design taken directly from the video Auramotors. This is the simplest of all aura motors, and is extremely inexpensive in design. It consists of a simple aluminum vane which is carefully balanced on a sharp needle point. The design requires almost no experimental talent at all. It can be made in less than 5 minutes.

The first few experiments here will be a straightforward duplication of the primitive experiments on the *Auramotors* video. Anyone interested in these and other aura motor experiments should obtain the "Aura Motor" video from Borderlands. A number of startling results were demonstrated in the video which have not been widely publicized. The foil vane motor provides us with a method for showing auric power at great indoor distances, and is so basic that dissenting arguments are quickly dispelled. You professionals who wish to keep your positions should try these experiments behind "closed doors"!

Our very first preparatory step is to establish a controlled situation. To perform these tests we must neutralize any electrostatic charges which will surely develop through frictive handling and through physical movement across a floor. Find a cold water faucet. The kitchen sink will do, since it also provides a smooth table surface on which to place the motor. Measure out two pieces of thin wire, each 15 feet in length. Be careful not to tangle these! Strip the insulation from each end. Take one wire and wrap one of its ends around the needle. Take the other end of this wire and tape it securely to the cold water faucet.

For an additional precaution, we will use the second 15 foot wire length as a "hand unit", insuring that we ourselves are grounded as well. So take one end of this second wire length and tape it also to the cold water faucet. The other end will be held in your hand at all times when performing experiments with the vane. For now, just leave it on the floor. Our precautionary measure is complete. These twin wire links to a common ground effectively neutralizes any electrostatic charges which will be developed between ourselves and the vane.

No one can now accuse our results as "flawed, invalid, or self-deceived", the common song of my detractors. With the "electrostatic effects" being removed, we will feel confident that our observations are relatively pure. The only other factor which may prove disheartening to you will be the possibility that room draughts and temperature differentials will produce motion in the milligram aluminum vane.

I have performed these tests with the vane under a thin-walled glass bell jar. The auric influence effects are considerably deadened by the nonconductive enclosure, but nonetheless persist. One must understand that glass enclosures must be tested for auric conductivity, and that certain kinds of colored (metal doped) glass do yield powerful effects. The typical lime glass of art store bell jars is a decidedly inferior grade, otherwise I would have suggested we perform all the experiments under glass. Despite this "weak point", I will assure you that effects observed here will rule out the accusers who use draughts and temperature differentials. You will see that these effects cannot work instantaneously across a space of 30 feet!

Now we will construct the vane motor itself. Take a sewing needle and tape it (point up) to the side of a drinking glass. Please be careful with this point, since it poses a hazard! I have too often been "spiked" by the design. Now cut a 6 inch long piece of aluminum foil with your shears. It need not be more than 3 inches in width. Cut this strip into a long diamond shape, about 1 inch across at the center. Fold this long diamond shape on its long axis. I usually find a sharp formica table and crease the foil sharply on its edge. Then I spread out the "flaps" somewhat, and balance it on the needle point. Once you have done all this, make sure the room is relatively free of draughts. Now step back and be amazed!

#### **EXPERIMENT 1**

Hold the personal grounding wire in your left hand. Now hold your breath! I mean, hold your breath literally. We do not want any draughts to influence the vane. Just stand near the vane. Did the vane turn toward you? The vane will stay in that position, pointing directly at you. Why this attraction? The vane is lining up with a flowline which leads directly into your solar plexus, the main auric entry point of the whole body. Turn slightly to the left or right of the vane. Watch the vane follow you with uncanny speed. Wait each time before turning slightly. Wait for the vane to "settle down". In other words, allow any stray air currents caused by your physical motion to cease. Some imagine all of these movements to be the result of air currents. This is why we will perform this test (and all of our tests) at greater distances from the vane. The sudden motions which one sees when simply pointing a finger at the vane will prove that auric force is real. Move back and perform the same tests at greater and greater distances, until you too are completely convinced that air currents cannot be the motive cause.

#### **EXPERIMENT 2**

Now we will test the auric flow which projects from the hands. Bring the pointing finger of one hand near the vane. It does not matter which hand you use, so you may decide this variable. Do you see any vane motion? You will observe either an attraction or a repulsion. This depends on the auric polarization of the vane. Play with these attractions and repulsions a good long while, the more you gain experience with the auric flow, the more you will be able to discern differences between it and electrostatic action.

Notice the gap between your finger and the vane. Do you see any discernible "glow"? I have persistently watched this space, and have always noted that a whitish auric glow fills the gap before the motion occurs. This effect works with every electrostatic precaution. If the action is electrostatic, there cannot be any such arbitrary repulsion and attraction on opposed sides of the vane.

In fact, aluminum vanes cannot become electrostatically polarized.

They do not and cannot act as dielectrics, and will simply distribute their charge across the whole of their metal volume whenever accidentally influenced. Being some 6 inches long (25 centimeters), the charge is distributed in 0.8 nanoseconds! In the act of moving under auric influence, we often observe a constant undulation of the vane from repulsion to attraction. Some may see in this undulating phenomenon some ionic "charge-discharge" action, an hypothesis which does not hold up in grounded situations. Thankfully, our preparation has eliminated all of these possibilities. The effect is clearly anomalous, and is the result of a distinct energy proceeding from your right hand.

#### **EXPERIMENT 3**

Dr. Walter Kilner observed the action of electrostatic charge on the aura. Charged persons actually became weak and sluggish. Their auric emanation appeared to shrink. Until they were discharged, these persons felt ill. When discharge occurred, Kilner observed that the aura became extremely stressed and expanded. Constriction of the aura in the prophase, expansion in the anaphase. This effect was unfortunately employed in a great many medical applications of the day. The dangerous application of high voltage electrostatic energy was believed to effect a beneficial auric state. This falsity is yet being used by a great many peddlers of experimental medical devices.

I have purposely applied electrostatic charges to my body without holding the personal grounding wire. In these conditions, I have felt the sudden loss of energy. The lassitude appears immediately in the vane. You can easily see that electrostatic charges will inhibit the otherwise lively vane movements. Try this experiment and see it for yourself. Let go of the personal grounding wire. Now, scuffle your feet against the floor, or rub your hands briskly across a counter top. Place your hand near the vane. Do you see that these charges cause the vane to suddenly become sluggish and lethargic? In some extreme cases, you will see that the application of electrostatic charge will actually "deaden" the vane for a good long while.

Grab the grounding wire, and let the electrostatic charges gradually leak into the earth. The body is not a perfect conductor. The charges must drift over and across your skin to ground. You should observe the passage of a few seconds while this discharge occurs. When the process is complete, you will see an amazing recovery! Watch the vane suddenly spring back to life, an amazing verification of the Reich Rule concerning vital and antagonistic (irritating) forces. As long as your aura was loaded with charge, its vitality was masked.

#### **EXPERIMENT 4**

Vane motors will show you the flow which comes from each of your hands. But between the hands, there is a directed auric flow. This flow differs with the sexes. For men, the flow usually comes out of the right hand and into the left. It is reversed for women, a beautiful and sublime fact concerning our very different physiologies. This experiment will show you that the aura flows in specific directions across the body.

You may want to wrap the stripped end of your personal ground wire around a finger. This frees up your hand movements. Hold your breath again, and place your opened hands on opposite sides of the vane. Let the palms of each hand face inward, toward the vane. Did you see that sudden motion? The effect is strongest with the hands on opposite sides of the vane. Now the vane acts like a real aura motor. Watch the vane following every movement of the two hands! The vane lines up with the auric flow between your hands.

Not convinced? Is this motion due to draughts? Distance will always serve as our crude means for separating the action of draughts from those of the aura. Move your two hands apart to a greater distance, even to full arms' length. Keep your palms facing the vane at all times. The vane continues to pursue!

What is happening here? The action cannot be electrostatic. You and the vane are connected to a common ground. So what is occurring? Why the mystifying movements? The explanation is found in the aura. The auric field flows out of your body. It also has a basic symmetry which has been well corroborated by legendary qualitative researchers. We know that the auric field flows from one hand to the other. The vane is caught in this flow, and seeks to conform its position with the flowlines. It therefore will change from a transverse position in order to assume a polarization which points from hand to hand. The vane will point into any single hand at right angles to the opened palm.

#### **EXPERIMENT 5**

Water seems to be a most important substance for the amplification of these effects. You have not been directed to use a water glass for the principle support of the vane. You have seen the strength of results obtained without water in the glass. Now try filling the glass with cold water. Do not wet the vane! It becomes useless after becoming soaked. Take the vane off its needlepoint and fill the glass halfway up to the brim. Now replace the vane again, balancing it ever so carefully.

Repeat the experiments now and determine whether or not water has amplified the response of the vane to your presence. I have found this so in every repetition of the experiments. You can leave the water in the glass for every subsequent experiment in this series.

Remember to always hold the personal ground wire in your hand throughout the trials.

#### **EXPERIMENT 6**

Once again, hold the personal grounding wire in your left hand. Carefully pull the wire along as you move around. From a 1 yard distance, point your finger at the vane and wait. If nothing happens, take the vane offits needle point and slowly refold it with your hands. Inother words "crease" the vane slowly, so that you make a slow sweep of the aluminum vane. The effect of this manipulation is to "repolarize" the vane to your body aura. Excessive handling of the vane better serves to polarize this vane to you alone. It will then bear your "signature", or auric pattern.

Rebalance the vane again on the needle and step back. Point your finger at the vane, and watch it slowly move around. It will conform to the auric flowline from your finger. Step to the far wall of your kitchen, as far as your available room will permit. Now move back and position the vane at right angles to yourself. Step back slowly to the furthest distance and point at the vane. Wait. It should "seek you out".

You have determined the range of your aura. Test this range from day to day. I find that it drops down to surprising minimums whenever the weather is poor. It drops to surprising low values when the moon is full, giving very "dull" response. Auric range diminishes whenever you are feeling weak or ill, a good indicator of personal vitality. No, this is not the result of electrostatic action. If you have followed my instructions exactly, both you and the vane are grounded to a common pole. As a result, there can be no net induced charge and no net electrostatic accelerations. Draughts and temperature differentials will not produce these quick vane movements, especially at the distances to which you

may observe them. It becomes clear that these movements are not the results of anything less than an auric flow from your body.

#### **EXPERIMENT 7**

Whenever an auric flow is directed across a space, a "polarization" is produced. Auric polarizations are formed when your aura finds a suitable "reception" point in space. Place the vane motor between yourself and a small plant. Let there be a 1 yard distance between plant and vane. Step back to a good distance with the ground wire in your hand. Now look intently at the plant. Did the vane turn toward you?

Any object which seems to attract your attention is absorbing some portion of your auric output. This receptivity forms an auric couple. The degree to which your attention is powerfully drawn will determine how strong the couple is. The vane motor can best reveal these effects. By lining up with the flowlines, the vane motor can show the strength of an auric polarization state in any space. Interpose the vane between yourself and any art object which you like looking at. You will see strong reactions when strong auric couples are formed.

These aura motions are each demonstrations similar to that of psychokinesis. They prove that matter moves under an auric influence. The motion is a result of physiological auric flow, not of bioelectric fields. Please also realize that willpower is never required in producing these effects. In fact, you may find that all attempts at forcing the vane to turn by "willpower" actually causes the vane to hesitate and cease.

I would urge you to refrain from these exercises. The desire to demonstrate some personal power over matter is a strong temptation in all of us. It is the ancient desire for mastery over the world, the theme of all great mythic tragedies. If you feel the tug, and want to know real pain then this kind of "willpower" exercise is just for you! You should be prepared for some of the negative consequences of this activity. You should also be armed with some basic methods for alleviating the annoying after-effects of the attempt.

#### **EXPERIMENT 9**

Whenever the vane seems to "lock", or become unresponsive, it is important to gaze away. I also find that it is critical that your gaze falls upon a grounded object (the sink) while working with the vane motor. Try this even if you find there is no "lock" on the vane. While working with the personal ground in hand, gaze intently at the faucet. Watch the vane move!

There is power in a mere glance of the eye. The visual ray is a projection of the aura. When your eye "touches" the faucet, you are literally achieving a grounding of the aura in absence of any physical (wired) connection. The effect demonstrates the reality of auric connectivity. The psychokinetic motor of Pavlita required repetitive sweeping motion of the "visual ray" across its different components. Without this sweeping eye contact, his aura motor would not rotate.

While the functions seem different in each of these examples, the principle remains the same. Visual ray effects are real, and are routinely used by dowsers. In his classic work *The Cosmic Pulse of Life*, Mr. T. J. Constable describes a personal experiment in which your visual ray can be felt. Hold your hand up in front of you, and sweep back and forth across the back half. Note the peculiar sensation? Feel the warmth? Feel an irritation? Do you now understand why it is possible to literally "feel someone" watching you? Try making the vane move by looking at it, and then looking toward a grounded site.

#### **AURIC POLARIZATION**

What you have just observed is a classic example of auric coupling. We can test for many kinds of auric coupling with the vane as an indicator. The vane registers any directed flow of aura current, and will show auric polarizations. Have you observed how the vane turns and remains fixed in an auric flowline? Does this mean that auric current is static, or somehow rigid? Not in the least. The vane behaves only as a flowline indicator. It is not designed to spin when auric currents flow through space. The vane motor is simply a indicator of auric current flow.

The vane works especially well when a strong aura source is absorbed. The vane also reveals spaces in which two or more auras blend. Any mutual attraction between two different auras will produce a net flow in space. This will be revealed as an auric polarization.

The simplest type of auric polarization is that which involves a strong auric source and a grounded object. Auras will seek out grounds, forming a couple which has already been demonstrated to you. Your experience with the vane has shown you that your own auric flow is projective. This projective flow has some potential! The manner in which your aura presses out into space can be used to discover differences in the absorptivity of that space. For example, strong vane responses will denote more highly absorptive grounds.

Because there are so many natural auric sources and sinks, the space within your home will not be uniformly absorptive in all directions. The vane will, however, reveal every distortion in space. It is a very basic indicator of "auric topography". Plants, animals, people, and natural geological locations all project their own auras into space. How they blend and repel is a fascinating study which we can undertake in a very rudimentary way.

#### **EXPERIMENT 10**

The vane motor is a compass which assumes its axial orientation whenever any auric polarizations are found. The vane can measure the polarity of plants, persons, rocks, and (at certain times) the moon and sun. I have noticed a strange effect which occurs whenever the vane is left to turn on its own. In the general absence of any strong auric source (people, animals, strong celestial events), the vane will always assume a fixed compass orientation. The effect is neither of magnetic, nor of electrostatic origin. After watching this wonderful phenomenon in several experiments, I decided that it had to simply be the result of a regional auric flow. This polarization had to be one, derived from the local earth conditions.

When I lived in a house further down near a more highly wooded area, this strange polarization caused the vane to orient itself along a NE-SW line. In our new home, no more than 1/4 mile distant from the former, I find that the natural auric flow is identical. I do not have reason to believe that earth-relative orientations are necessarily continuous across the face of the land, and rather tend to believe that these aura lines are local effects which shift greatly from region to region. But you will now determine this for yourself.

Just leave the vane unattended for several minutes. Make sure that you note its orientation. Watch the vane from a distance. You can best do this through a doorway. Do not approach the vane at all, since this will throw it back into forced action. Watching through a doorway tends to block auric flow to the vane. Carefully notice the manner of automatic movements which the vane executes. The vane will spontaneously start, swing, and reverse directions. We can speak of this

automatic swinging effect much later. For now, watch the way the vane reaches its "rest state". When it does, please note the orientation.

Your vane is showing you the general flow of the earth aura through your home. What a wonderful tool for geomancers! Match the natural inclination of the vane against the stellar headings of north and south. This auric axis offers us new quantitative evidence that the world is ruled by deeper, more permeating influences. A complete correlation of many readings such as this will teach us all about the auric flow across any tract of land. Perhaps you could write us and let us know what compass headings your vane assumes in its "rest state".

#### **EXPERIMENT 11**

How do materials shape and modify your aura? How does matter modify the pulsations and the patterns of your auric flow? Now you are ready to perform a series of tests with some hand held "wands". Obtain a collection of different metals (copper wire, iron rod, zinc, nickel, tin, silverware, gold pieces), some non-metals (carbon rod, solid sulfur, glass rod), and possibly some crystals (quartz, topaz, amethyst) and minerals. While holding the personal grounding wire securely in one hand, and standing at a some distance from the vane, extend each of these materials.

Watch as the vane responds to each material. Yes, you will see a definite difference in responses.

Auric flow is a pulsating current. In your hand, each substance effectively filters your auric current. It is not difficult to understand that different materials will filter certain portions of this auric current in a special way. Others will resist the current. Yet others may add some new component of their own to your fundamental pulsations and patterns. Therefore you should see differences in the response of the vane when each substance is held in the outstretched hand. It is a fascinating study.

Of all the substances I have studied, I found that carbon was the most powerful. It seems to amplify auric currents. With a carbon rod in my right hand, the vane moved with great strength. You should try as many different materials as you can obtain. This experiment opens the door to a great many other forms of research.

#### VITALITY STATES

Who has ever stood in room filled with people and has never "felt the vibes"? The unmistakable sense that a space is joyous and energetic is only matched by those social settings which, in complete contrast, seem dull and depressing. The total population of individuals in one setting can either magnify or deplete personal energy. In making such an assessment, anyone can accuse us of being far too subjective and superstitious. The vane motor, nevertheless, can prove these subjective senses as objective facts. Tools such as the aura vane convert this qualitative awareness into quantitative verity.

Yes, the varying degrees of personal vitality can be assessed by use of the vane motor. Comparisons between persons of high and low vitality can be easily shown. We especially note these differences when two or more people stand near the vane. Each aura projects into space, and therefore "loads" that space with a pressure potential. But different persons project very different auric pressures, and this is the degree of vital potential which some seek to measure. The vane motor provides a means for making such measurements.

But health is far more than just an exuberance of potential. There is also a degree of detail which defines the overall auric integrity of a

person. The auric current not only pulsates, but reveals trace patterns in its passage through a space. These patterns reveal the degree of auric detail, the degree of auric integrity which is projected from a person. Health and vitality are indicated by a combination of auric pressure and auric pattern integrity. Other designs must be made to answer this need, since the vane motor will not measure that degree of pattern detail.

#### **EXPERIMENT 12**

We can make a crude measurement of vital states with our simple vane motor. When different persons enter the experimental space, they project their different patterns and pressure potentials. The complex structure of auric states becomes evident in highly populated spaces. You will be able to measure the auric structure of any space with your simple vane motor.

I have found that the vane motor exhibits complex movements when several people are in a room. Persons whose vital force is strong will supervene in your experiments. I often find it quite impossible to achieve the same kinds of liberal effects in lecture halls. Rooms filled with adults and some children are extremely dense with a wide variety of auric patterns and intensities. In such instances, the vane serves as a remarkable kind of biological potential detector, a real revelation.

The vane usually seeks out certain sectors of the room in which vitality is excessive. The auras of small children are so vibrant and projective that, despite my excessive handling of the parts, theirs become the "master imprint"! I have had amazing experiences especially when children are watching the experimental procedures. Their auras quickly and effortlessly become the dominant influence on each of my experimental demonstrations.

I have not been a little shocked to watch certain young children "turn the vane" from a 40 or 50 foot distance. On one occasion, there was one particularly precocious child whose aura was especially potent. He was able to cause the vane to swing toward himself by simply glancing at the apparatus, an effect which especially pleased his aunt!

Please do not accept my words. Try them yourself. Make comparisons of vital states among several persons. Set up the experiment in stages. Invite one person into the room, and learn how the vane responds to that one. See whose aura assumes the primary role. Then try two, then more. With a great many persons in your presence, you will see the "self-structuring" auric effect which I have described. You will find that I have given you as accurate a description as can be evaluated by any researcher.

#### **EXPERIMENT 13**

We have seen that our excessive physical handling of the vane has preconditioned it to our specific aura, evidence that matter can be permeated and permanently imprinted with any auric pattern. In these experiments, the available pattern happens to be yours simply because you have handled the parts. But if the vane was repeatedly rubbed on a plant, the vane would respond to the plant itself; a possible series of experiments for someone to pioneer.

There is another aspect of this pattern-imprint effect which is even more mystifying than that produced through physical handling. It has been long asserted that the voice alone is a sufficient patterning source to cause polarization in matter. But this is a reality which can now be tested. The vane reveals that your voice can literally replace the polarizing effect of excessive physical handling. The experimenter's

voice can be so directed at the vane that it will "recognize" and "respond" to every instance of that voice. But words alone are not sufficient proof, are they?

To test the response of a vane to your voice is a fascinating demonstration in auric science. We will now make another vane. Take a sheet of aluminum foil again. Sing any song you like into this foil. While cutting and folding a new vane, keep singing into the foil. Sing at the vane while balancing it on the needle. Perhaps you would want to perform this process with a moderate amount of "privacy", or run the "social risks" which I have braved. It will not be the first time that I have experienced the raising of eyebrows!

Set the vane again on its needlepoint and hold the personal ground wire. Carefully and silently step back. Move to a position where you stand at right angles to the vane. Do not make a sound. You may see the vane "wandering", searching for its target. Now make a loud sound, and watch the vane respond! It should suddenly turn toward your voice, a remarkable display of auric discharge.

Keep the personal ground wire in your hand, and maintain the greatest possible distance. Each time you make a sharp sound, the vane will turn toward you. Try this and satisfy yourself that the effect is real. It seems that only experience can best convince and teach the soul. Yes, you can reproduce these remarkable effects! I have been able to make the vane follow the sound of my voice around a room for nearly half an hour. In these experiments I perceive something of the work of John W. Keely. In addition, this vane motor effect can be used to literally "track" specific persons by their voices alone.

#### **EXPERIMENT 14**

After having performed the last experiment, you believe that you have learned the power of song. You sang into the aluminum vane for a sufficient time, and saw the resultant polarization by which the vane "recognized your voice" enough to track it. In singing, you effected a strong auric polarization in the aluminum foil. The effect was real enough, but confused with the nature of sound and of aura. Perhaps we need to separate these two in order to better comprehend what is actually responsible for polarizing the vane.

I am going to suggest a strange experiment now. If you follow the steps as indicated, you will produce an effect which has not previously been demonstrated. The auric pattern of each individual is succinct, and reaches the material targets of that voice. But the discharge of sound does not carry this auric pattern. The voice has its true source in the auric anatomy, and is the chief means by which certain auric fractions may be outwardly projected. The sound we hear when a person speaks or yells is the result of an auric discharge but is not itself the aura.

How can such an outrageous statement ever be tested? We will now try a truly strange experiment which will prove the truth of these equally strange notions. Have you ever feigned yelling at someone, but withheld your voice in a comic manner? Prepare another vane. This time, withhold your voice while continually feigning a "yell" at the vane. If you do this enough you recognize that a certain kind of "emotional" flux literally pours out of your mouth and face. Therefore, in absence of the voice itself, your very intention is strong enough to polarize the vane.

Carefully rebalance the vane on its pivot once again. With the personal ground wire in your hand, quietly step back from the new vane. This time do not speak or point at the vane. Feign a yell, and

withhold your voice. Are you able to make the vane turn toward you? I have found it possible to make the vane turn by this method alone, an amazing proof that aura and voice are two separate things.

#### **CONCLUDING STATEMENTS**

The reality of auric energy is thus practically realized. Each of these unique demonstrations will stand as a powerful quantitative proof of the most fundamental qualitative postulates. The vane motor reveals the sharp antagonism between electrostatic charges and auric energy. It is a simple and effective means by which we may differentiate between thermal (draught) waves and auric flow. The vane motor can serve us as a crude measuring instrument for the study of auric currents and auric polarizations. Auric potentials can be evaluated. The vital states of individuals can be ascertained. The vane motor is a crude quantitative tool for determining the modifying power of metals, chemicals, minerals, plants, animals, and geological structures. One can determine the auric polarization of an area or region. The condition of space can be mapped with the vane motor.

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# Dinshah P. Ghadiali

# An Unknown Genius

by Robert Goodman

N a society of dying spiritual and moral values sacrificed to technology and economic superiority, the name of Dinshah P. Ghadiali rings no bell with the majority. However, this forgotten pioneer, doctor, lawyer, and inventor dedicated almost his entire life to improving the health of others with methods that are still revolutionary today.

Dinshah Pestanji Ghadiali was born on November 28th, 1873 to a Parsi family (of Persian origin) in Bombay, India. Extraordinarily intelligent and full of energy, he was sent to school by his parents at the age of 2½; before his eighth birthday he had reached the upper-level of education; at eleven he was appointed assistant to the Lecturer of Mathematics and Sciences of Wilson College, Bombay, where he attended; at thirteen he was admitted to the University of Bombay. Then in 1887, at the age of fourteen, he became Demonstrator in Chemistry and Physics at no less than seven different institutions, and he began to study medicine.

In spite of being a child prodigy, his father never approved of his scientific tendencies. He wanted Dinshah to be a clock maker, like himself, and follow him in the family business. On many occasions, his father demonstrated his disapproval in a very violent manner. It is an unfortunate fact that there are too many examples of such occasions. On one occasion, in an attempt to raise some money, Dinshah set up his own business installing lighting systems, doorbells, and burglar alarms, fixing a small sign advertising his services outside his bedroom window. When his father saw the sign, he lost his temper and flew into a fit of rage. He tore the sign from the window and threw it at his son—a large amount of blood oozed from a cut on Dinshah's neck.

However, neither this nor other similar outrages dissuaded the youth from continuing on his path. With an iron will he continued studying and researching. Despite his father's actions, he never felt bitterness toward him, as may be appreciated from the following words spoken at his father's death: "I admired my father for his honesty and integrity; I was proud of him, in spite of not being able to convince him to accept how I was. For me, he was my father, the earthly representation of the Heavenly Father."

#### A MYSTERIOUS GUIDE

By 1892 Dinshah Ghadiali was already a member of the Theosophical Society, but neither this nor his religious education made him a believer. His standpoint was that everything had an explanation through mathematics and physics, leaving God little to do in a world full of scientists. However, when he was nineteen years old, something occurred that brought him face to face with God, radically changing his way of thinking. This experience occurred a little after being

appointed Superintendent of the Telephone and Telegraph Company in the State of Dhalpur, under the rule of the Maharaja Nehalsing. During an inspection trip to one of the Maharaja's properties, high up in the Himalayas, Dinshah discovered that an expensive dynamo had burned out due to the negligence of the property caretaker. Moreover, he discovered that the contractor responsible was charging the Maharaja of Nehalsing an exorbitant price for electric light bulbs — his management had been a complete disaster.

The contractor in question tried to convince Dinshah to write a false report, but the young superintendent refused to report anything but the truth. The contractor locked him in a small hut without food, water, or the clothing necessary to resist the extremely cold temperatures of the Himalayas. He was trapped. After several days, a mysterious person appeared carrying a lantern, inviting Dinshah to follow him, which he did. To his great surprise, he saw that his guide seemed to float over the snow without making noise or leaving footprints. At last they arrived at a refuge where they received food, drink, and the means to leave the mountains. The young Dinshah turned around to thank his mysterious guide, but he had already disappeared.

#### ESCAPE FROM THE BLACK MAGICIANS

Farther on his return journey, he discovered a monastery where he thought he could ask for accommodation to spend the night. He was amazed to discover that what he had previously thought were Buddhist monks were in fact members of a sect dedicated to the practice of black magic, using their psychic powers to harm the human race. He could confirm this worrying suspicion while he squatted on a small balcony and observed a blood-chilling ritual: dozens of black magicians were sitting down concentrating their negative energies on remotely harming somebody with their mental powers. In the centre of the group, a Nagrampa (master magician) recited mantras for hours on end.

After a while, the magician took a representation of the victim made of flour and blood in his hands and repeatedly pierced it with a huge, thin needle. The ritual should have finished by throwing the small "doll" into a fire, but Dinshah, risking his own life, interrupted the ritual at that moment, not allowing it to be completed. The magicians were stunned as, at that moment, he loudly uttered a Zoroastrian mantra for use against malignity to neutralize the forces of the black magicians. According to his version, and that of his biographers, the vibration produced by the mantra made the Nagrampa fall unconscious as the same negative energy he had been sending rebounded on to him just when the "doll" broke into seven pieces.

Taking advantage of the first moments of confusion, Dinshah ran out of the monastery followed by most of the black magicians. After crossing a jungle he reached an old rope bridge over a fast flowing river. Not having any other choice, he started to cross it. But just when he was in the middle, the ropes broke throwing him into the water below. Dragged by the water and not knowing how to swim, he shouted for help as he was about to drown: "Oh Master, save me." He then heard a voice say: "Why do you fear?" At that moment, an invisible and strong hand took him out of the river and left him on the opposite bank, safe from the terrible monks. That experience, told by Dinshah himself, whose veracity we are not going to judge, led him to believe that God was his motor and he was God's instrument.

#### FIRST JOURNEY TO THE NEW WORLD

In 1896 Ghadiali did something that he had been longing to do—he made a trip to the United States, wasting not a moment there. He became the first person to give a conference on the recently discovered Roentgen Rays (X-rays) and met some of the celebrities of the time. He befriended Thomas Alva Edison, the famous inventor of the electric light bulb, the phonograph, and other marvels in common use. He also

had the opportunity to know Nikola Tesla, the discoverer of alternate current and the inventor of the Tesla coil. Before returning to India, his name was already known in scientific circles and specialized magazines. The New York Times and other newspapers nicknamed him the "Parsi Edison."

Back in India in 1897, Dinshah —who by then had finished his medicine studies — practiced as a doctor during an epidemic of bubonic plague (better known as the Black Death), which severed the lives of millions of people. Most doctors struggled hopelessly against the plague, hardly managing to save as few as forty percent of their patients. Dinshah Ghadiali began to experiment with his own methods and was very successful, managing to conquer the illness in sixty percent of the cases. It was then that he began to take a profound interest in colour therapy, thanks to the work of Babbit

The Principles of Light and Colour (1876), as well as those of Dr. Seth Pancoast Red and Blue Light and Light and its Rays as Medicine (1877).

#### PRELIMINARY RESEARCH IN COLOUR THERAPY

That year, 1897, marked a turning point in his medical thought. Everything started when the niece of one of his friends from the Theosophical Society (which he himself had been an initiated member since 1891) was dying from mucous colitis. The young woman was receiving treatment from a famous specialist of the time, who administered her all of the available medicines with no success. Dinshah decided that colour therapy, as a complementary remedy, could give her the possibility of recovery.

Dinshah began treating her following Babbit's method. He projected indigo light over her body from a kerosene lamp, using a glass bottle of indigo colour as a filter. He also filled another bottle of the same colour with milk and exposed it to the sun's rays. After a certain time of exposure, it was ready for the patient to drink, and in this way the diarrhea was considerably improved after only one day of treatment. Three days later the patient was able to get up. This spectacular success

marked the beginning of his research, which continued for twentythree years and resulted in the creation of the revolutionary colour therapy method that he called Spectro-Chrome.

#### FAREWELL TO INDIA

On July 4th, 1908 Dinshah Ghadiali left his country forever, first stopping over in Europe, where he visited England, France, Belgium, Holland, Germany, Austria, Switzerland, and Italy, to commercialize and promote his electrical inventions and other projects such as his "Alcohol-free wine." Nowadays, the word "free" is very familiar and, like a Siamese twin, accompanies a whole range of products — alcohol-free beer, calorie-free margarine, etc. — but in those days it was unheard of. The idea of this invention occurred in 1909, after giving a speech in London about the dangers of alcohol. Wanting to provide a substitute for hard drinks, he started to commercialize fruit juices (processed in Switzerland) under the name of "alcohol-free wine."

He finally arrived in the United States with his young wife, Manek M. Mehta, and his two children, to settle there permanently. In the

beginning life was particularly hard, in spite of his brilliant curriculum — doctor, physicist, lawyer, linguist, etc. — due to the fact that his wife, who belonged to a rich Parsi family in Bombay, left him and returned with their sons to her native country.

In those difficult years Ghadiali invented an "automobile fault finder" and a "forgery-proof electric pen," at the same time creating companies to commercialize them. In 1913, the French Government offered him one hundred thousand dollars of that time for his fault finder, an offer he rejected, preferring to donate the invention to his adoptive country as a sign of gratitude.



#### PROLIFIC INVENTOR

The versatility of this great scientist was such that there existed no field untouched by his revolutionary designs. In 1914, he created the

Dinshah Cinema Company to develop another of his inventions: the sound-on-film, shutterless and flickerless motion-picture projector, whose patent may still be seen in the records of the period.

After six years of residence in the United States, he obtained the American citizenship. Characteristics of this versatile researcher that should be specially mentioned are his sense of duty and his spirit of service to the community — very rare qualities in the "era of competitiveness" — which moved him to offer his services to the city of New York. In 1918 he was appointed Surgeon Captain of the Police Reserve. Later he occupied the post of Governor of the Police Aviation School and, on request of the Special Deputy Police Commissioner, organized the New York Police Reserve Air Service, training more than 200 cadets to fly. He also served two years without any economic compensation and was awarded the Liberty Medal from the hands of the New York Mayor, John F. Hylan.

A 1919 poster advertising an acrobatics exhibition of the Police refers to "Colonel Dinshah P. Ghadiali, M.D. - Commander," leaving a permanent record of his activity and rank in the field of aviation. In fact, it was during this exhibition flight when Ghadiali almost lost his

life. He was in the rear cockpit of the plane from where he dropped toys, candy, and peanuts on parachutes to the children. One of the parachutes became entangled in the plane's elevator and made the handling of the plane extremely difficult. Fortunately, his expertise saved the situation.

#### ADVANCES IN COLOUR THERAPY

During all this time, Dinshah's research into colour therapy had not been abandoned at any time, in spite of his multiple occupations. On April 26th, 1920 Ghadiali released the improvement of his own method, Spectro-Chrome Therapy, to the public. In its development he includes some of Babbit's basic principles as used successfully in the treatment of mucous colitis in India, twenty-three years before. What had been an empirical theory became a method with scientific precision, performing the application of his therapy using machines projecting light through filters of different colours (up to twelve).

Of course, he never claimed that only light and colour could satisfy all the requirements of human health. In fact, he taught his students that a good vegetarian diet combined with yoga exercises and down right common sense would maintain them in good health always, without needing to resort to his projectors except in emergency cases or accidents.

A little after starting his experiments he obtained his divorce, alleging that his Parsi wife had abandoned him, and married his secretary and collaborator, Irene Grace Hogar, with whom he had eight children (all the children of his first marriage died tragically). In 1924 he bought a twenty-three acre property in Malaga, New Jersey, which became the headquarters of the Spectro-Chrome Institute. As there was certain freedom in the medical field in the twenties in the United States, many specialists graduated in the new technique of Spectro-Chrome. Many doctors complemented their orthodox training with Dinshah's methods of colour therapy, among them, the prestigious Doctor Kate Baldwin, chief surgeon of the Philadelphia Women's Hospital.

This Doctor, a passionate defender of Dinshah's methods, worked with several Spectro-Chrome machines in her hospital, even declaring on one occasion — when Spectro-Chrome received its first criticisms — that she would close her department if she encountered any opposition for using these instruments. Her words proved to be almost prophetic as the directors of the hospital obliged her to remove the machines, causing her to resign and continue using them in her private surgery practice.

#### FIRST PROBLEMS

On October 12th, 1926, Kate Baldwin, presented a paper at the clinical meeting of the Section on Eye, Ear, Nose, and Throat Diseases of the Medical Society of the State of Pennsylvania, with the title *The Therapeutic Value of Light and Colour*. Below I have extracted some of the most important points from her paper:

For about six years I have given close attention to the action of colours in restoring the body functions and I am perfectly honest in saying that, after nearly thirty-seven years of active hospital and private practice in medicine and surgery, I can produce quicker and more accurate results with colours than with any or all other methods combined.... Of course, surgery is necessary in some cases, but results will be quicker and better if colour is used before and after the operation.... The use of colour in

the treatment of burns is well worth investigation by every member of the profession. In such cases, the burning sensation caused by the destructive forces may be counteracted in from twenty to thirty minutes and it does not return.... The healing processes are rapid and their use is recommended practically for all known illnesses....

But, in spite of this and other support received from medical circles, the success of colour therapy and Dinshah's inventions could not continue without hindrance in a society not willing (and still not) to acknowledge that other methods to deal with illnesses exist besides those recommended by the conventional medical authorities. For this reason the atmosphere of freedom was not to last long, and Ghadiali soon began to be attacked by different official organisms. The American Medical Association was not prepared to permit the simple Spectro-Chrome light projectors to threaten conventional medical practice. The fact that the results of this new method were spectacular — countless had benefited from this non-aggressive therapy — did not matter. Moreover, if people were taught how to cure themselves, the medical profession in the United States would be seriously threatened. To remove this "thorn" they did not skimp any investment. They realized that they had to be very clever in discovering a legal way to force Ghadiali to abandon his projects.

The pretext to take Dinshah to court was that his projectors were fraudulent, as there were insufficient proofs justifying their therapeutical value. Since he was selling the Spectro-Chrome machines, the accusation of fraud appeared to be an ideal one. He was accused before the Court of Erie of "stealing" \$175.00 from a student for the sale of the projectors. In April 1931 his case came up for trial: Dinshah defended himself brilliantly (after all he was a qualified lawyer), managing to white-wash his name and pave the way for Spectro-Chrome. He presented sufficient witnesses, like Dr. Baldwin and her brother, also a doctor, who left no doubt whatsoever about the validity of his therapies. In fact, in the legal statements of the doctors who had used Spectro-Chrome, it is possible to read that countless illnesses had been successfully cured.

#### **NEW TRIALS**

In spite of this first victory and its echo throughout the country, the acceptance of Ghadiali's methods was not general. Furthermore his slanderers did not give up, and in 1947 he was accused of "public fraud" by the FDA for the sale of his Spectro-Chrome light projectors. The accusation brought famous scientists to declare that light therapy was not a valid cure for illness. In his defense Dinshah presented more than 700 documents and 172 witnesses, confirming the usefulness of his methods, the validity of Spectro-Chrome's therapeutic claims, and the reality of its curative results. It was the longest trial in the history of Camden Court, lasting 42 days. However, on this occasion Dinshah lost the case and was fined \$20,000.00. He was sentenced to provisional freedom for five years, forced to dissolve the Colour Therapy Institute, and ordered to deliver his books and machines to the FDA for destruction. The calculated value of the material destroyed by the government was equivalent to \$250,000.

Ghadiali accepted the court decision and collaborated in the destruction of his own material. His sense of duty was beyond any other personal consideration. He was capable of fighting until the ultimate consequences, but he would accept the result if he lost.

Despite his methods and practices having been stifled by the



U.S. Marshals in Wisconsin pose with the remains of a number of Dinshah's color machines, seized from the homes of his followers around the country.

government, Dinshah was not persuaded to stop with his life's work. On the contrary, he continued working with his family, founding another nonprofit society in 1953, the Visible Spectrum Research Institute, which operated within the strict legal limits that had been imposed upon him. Now, he sold his projectors with a label indicating that according to legally recognized medical institutions, the machines had no curative or therapeutical value. Even in this manner, his legal battles had not come to an end. In 1958 the powerful FDA obtained a lifelong injunction against Dinshah's Institute, restricting his activities even more. Once again Ghadíali accepted the legal limitations and continued working within the limits of the injunction. He died in 1966. His son Darius said, referring to his father: "The name of Dinshah means 'King of Duty' and no other name could define my father better. He had defects and virtues like everybody, but when duty called, the bell had to ring only once."

Darius, Jal, and Roshan Dinshah dissolved the Visible Spectrum Research Institute in 1975 and registered the Dinshah Health Society as a nonprofit association. The purpose of this new foundation was — and continues to be — the diffusion of non-conventional methods of restoring and maintaining human health. The association is solely dedicated to the work of Dinshah P. Ghadiali and has published a book entitled Let There Be Light. This work is known by most colour therapists practicing throughout the world, many of whom use Dinshah's method in their own work.

## INVENTIONS OF DINSHAH P. GHADIALI

Dinshah P. Ghadiali invented no less than thirty-two different devices, including an anti-forgery electric pen, a lifesaving trolley-wire high-tension safety circuit, a wireless electric "brake" to prevent collisions at sea, a men's electric shaver, and an electric "peace gun." The latter would not kill, but only stun and temporarily disable at a distance. It was offered to the British War Office, but rejected as they were only interested in weapons that would kill. He also invented a "Dumb-Speak" device that enabled deaf-mutes to carry on a conversation.

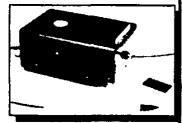
In 1915 — as indicated in the report — he had also perfected a shutterless, flickerless, talking motion-picture projector. Then in 1933 Dinshah patented an automatically-dimming auto headlight (which appeared on American cars several years later), as well as a revolutionary engine that could put "500 horsepower under the bonnet." As an added feature, the car could perform better than anything on the road. without a separate starter, clutch, transmission, or even brakes in the conventional sense. This invention was demonstrated to experts from the automobile city of Detroit. For three days Dinshah outlined the basic principles of his radically different auto concept, without disclosing a single secret to the experts from the Motor City. Although they seemed to be convinced by the viability of the project, they never implemented it for economic reasons. Such was the case with other inventions of his, such as the lifesaving trolley wire safety circuit. In this case the directors of the trolley bus company openly confessed: "The cost to equip our lines with these devices would be much greater than the small amounts we pay to accident victim's relatives."

The development of Spectro-Chrome slowed down his inventions in other fields during the period prior to his full-time dedication to colour therapy. As time passed he lost his enthusiasm for technology, no longer viewing it as a way to improve human living. Dinshah understood that he could serve humanity better by living an austere life and surrendering himself to duty, even in the richest and most materialistic country of the world. Further information can be obtained from the following address: Dinshah Health Society, P.O. Box 707, Malaga, New Jersey 08328.

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# Introducing Isotope Oxygen-18

A Brief Explanation of Its Interplay With Human Body Systems for Wellness by Haroldine

The Universe in which we find ourselves and from which we cannot be separated is a place of Law and Order. It is not an accident, nor chaos. It is organized and maintained by an Electro-dynamic (energy) Field capable of determining the position and movement of all charged particles.

- H.S. Burr, Ph.D., author of Blue Print for Immortality

Ageless Body, Timeless Mind, a book by Deepak Chopra, M.D., makes a special effort to remind us that as human beings we are primarily SPIRIT possessing a "physical" body and personality. If one defines SPIRIT as HIGHER FREQUENCY ENERGY, it may offer a common base from which to grow and expand into greater understanding. Energy is composed of waves or vibrations, their measurement is called frequency. The more gross or dense energy (because of slower vibrations) is usually recognized as "matter" by the human senses of sight, sound, touch, smell, and taste.

Everything on this planet is composed of energy and has its own specific energy frequency — colors and music are excellent examples of this. Have you ever thought of yourself as a manipulator of energy? Most of us are familiar with radio and television sets. As we select the station or channel of our choice, that is an act of specific frequency selection. More thorough understanding of energy and its varied frequencies allows one to select that which is supportive and creates wellness for the human being. In the energy world, there is only BALANCE and conditions or degrees of Imbalance. What the medical profession treats and calls dis-ease, is in the greater reality actually energy im-balance. To know wellness, seek balance.

This is the 1990's and to this point in time I have never read nor heard anyone speak of various qualities of different types of oxygen. There are three known isotopes of oxygen found in our Earth's density. The oxygen isotopes are called by the names oxygen-16, oxygen-17, and oxygen-18. Each of these three oxygens possess their own quality and have their own specific frequency. Oxygen-16 is the most common and is pretty much considered the only oxygen by most people. It is believed that in Ancient Times oxygen-18 was much more plentiful in the Earth's atmosphere. Through the passage of time, as our planet slowly grew more dense, oxygen-18 became more and more unstable and less available. Consequently, for the most part, the identity of oxygen-18 became clouded — with the exception of a rare mention in an article or book, written as footnote. (My very first introduction to oxygen-18 was a book reference footnote that spoke of a glacier core sample taken that revealed a more plentiful supply of oxygen-18 in the much earlier days of our planet's history.)

Only oxygen-18 is able to provide the higher frequency energy contact from which the body is able to transmute an adequate supply of the Lithium/Beryllium/Boron (Li/Be/B) octave cycle, which fully guarantees the integrity of the cell walls where the rootlets of DNA are woven. Further, as the Li/Be/B octave cycle becomes more and more activated, the body is able to transmute more oxygen-18. And, the

greater the availability of oxygen-18, the greater the constant supply of Li/Be/B is made available for the body's use as basic building/balance materials. Mitochondria (the battery or powerhouse of each and every cell) are nourished by bio-lithium. The frequency of oxygen-18 resonates with a very specific area in the midbrain that creates balance and causes certain chemicals to be released slowly into the bloodstream (sometimes called golden nectar), which bring about wellness to every cell and system in the body.

Oxygen is the coil of life from which the human body cells utilize the oxidation process as fuel in energy frequency form. For the process of regeneration and wellness, the finer the quality of oxygen made available for the body's parts and systems, the greater the opportunity for balance and total wellness. The human body contains approximately 95% water at birth and lessens to 75-80% in later years. ALL LIVING PROCESSES TAKE PLACE IN AN AQUEOUS SOLU-TION. Ideally, the quality of water to enter the body for the exchange and replenishment cycles will be fresh, pure, mature water. (Mature H,0 was defined by the water wizard Viktor Schauberger as having completed a full cycle by Nature where hydrogen always binds the oxygen. Mature water actually imparts energy to the body without necessarily a weight increase. Immature or green water has only passed through one half the cycle of Nature and oxygen tends to bind the hydrogen. Similar occurs with polluted waters where oxygen binds the hydrogen and creation of imbalance begins. Consequently, the potential frequency is lowered which saps energy from the body, often creates additional weight, and various degrees of imbalance are always sure to follow.)

Oxygen can only be released within the cell when adequate pure water is available through the process of oxidation. Oxidation produces energy-fuel for the body in the form of chemical and bio-electric energy. The ultraviolet radiation produced during the oxidation process has a chemical affinity with, and acts upon, normally inert nitrogen. Whatever interferes with oxidation interferes with radiation and its consequent electric potential. Protoplasmic oxidation, radiation and electric potential are tied together as a coordinated physical process. THOUGHTS CAN ALTER OXIDATION WHICH WILL EFFECT ELECTRIC POTENTIAL.

Human thoughts are composed of many, many energy frequencies. Sadly, human thought, through fear is the single largest cause of pollution on our planet during these present times. Thought is the glue that holds the matter world together. The Vital Life Force, known by many other names such as prana, chi, mana, odic, orgone, etc., is a sort of pre-atomic material. It is the basic substance which is "charged" by our thought energy and brings about conditions for either beneficial or destructive purpose upon our planet. Water acts like a carrier (receiver, storer, sender) for the Vital Life Force that is separate from oxygen, yet always piggybacks along with it. Wellness can be assured when a supply of 75% or more Vital Life Force Energy accompanies the body cells

creating balance. A great deal more Vital Life Force piggybacks oxygen-16 than is made available with the other two qualities of oxygen.

Oxygen-18 contains a higher frequency potential for the cell's use in the sense that it slows down the rate of oxidation and, at the same time, harmlessly burns off more of the dross and toxins (e.g. getting many more miles from the same gallon). Oxygen-18 produces a much cooler type heat and less friction in its process of oxidation; this is considered an anti-aging factor. Oxygen-18 has the ability, because of its higher frequency potential, to assist the pH of the blood to purify and remain in balance. When the pH of the blood remains in balance, the friendly bacteria remain in control of the body systems' actions and wellness is assured. Pathogenic bacteria form, multiply and change into viral form only when the blood is out of balance.

Though not recognized as oxygen-18, many modes are used that infuse the body with a plentiful supply of oxygen-18. These modes include hydrogen peroxide, ozone therapy, aloe veragel, CoQ<sub>10</sub>, garlic, Oxygen<sup>18</sup> Essence, mineral pools and baths, chelation, laetrile, mixtures of herbs, Naessens' injections of 714X, Dr. Koch's use of Glyoxylide, to name a few. A steady daily practice of meditation aids to infuse the

body with its own transmuted supply of oxygen-18. A natural physical sexual exchange between two loving partners is another method of oxygen-18 production.

Oxygen-18 is a component of the formative forces of other dimensions which filters into our 3-dimensional physical-matter world. Oxygen-18 is extremely unstable in most circumstances and dissipates. The familiar quote "Be in the world and not of it" suggests that loftier thoughts, along with slow deep breathing, will bring about higher energy frequency access than is usually practiced in most of our physical world.

The human potential seeded and born within the physical body is extremely vast. The physical body with personality and behavior attached, is created from the minerals of this Earth and acts like a programmed audio cassette tape as a tool for survival in earlier years. As reasoning develops along with experience, one is able to contact, and connect with higher and higher frequency energy through the alignment and balancing of the body's three nervous systems (central, sympathetic, and parasympathetic). These higher frequency connections allow the individual Spirit/Soul/Being to activate and take command within. As this occurs, one is able to disengage from the "survival chatter" and to enter a seemingly whole different realm of awakening and aliveness. Adequate oxygen-18 within the body cells support the higher energy frequency which allows the physical body and the light body to become connected and activated, if that is the desire of the individual.

As long as an adequate supply of the oxygen-18 energy frequency band is available in the human frame, the body is provided with sufficient material so that it may transmute essential bio-elements. These bio-elements ensure wellness through distant old, old age. The frequency band provided by oxygen-18 is the ideal and highest level of energy the physical body can contain and opens the connection to higher and higher realms of consciousness.

**GOLDENC CRYSTAL** 

(lithium/beryllium/gallium)

Work has been done with the Golden C Crystal, which has given excellent aligning and body balancing results to almost everyone who uses it. The crystal was found to align all seven major chakras in the human body within twenty-four hours. It completes the work of several individual lithium crystals at a more rapid rate, as if one had an antenna tuned into higher dimensions, bringing the attuned energies into the body as radiant light. When work was first initiated with the Golden C Crystal, affects were so surprising that the story retelling reads as if a fairy tale; though truth often is stranger than fiction.

The crystals were purchased from an estate sale; the two grandchildren both in the mid-seventies wished to complete the final inheritance division equally by turning the remaining properties into cash. In July 1982 at the time of purchase, I believed I was buying specimen type kunzite for use in the Lithium Research Project; I was very new to the crystal world. These crystals had been mined late 1800 and been stored away in the large bottom drawer of an old office desk. The crystals came from a freak deposit of nature; too pretty to discard and yet served of no value to demand at that time.

Many of the crystals were colorless with inclusions of yellowish-orange materials; when viewed in sunshine, they appeared as specks of gold. Some of the crystals contained varying shades of violet which were kunzite; yet, all the crystals contained the golden specks.

I cleaned and sunbathed the crystals soon after purchase. A mineral expert came to examine the recent purchase and exclaimed "pewter, pure junk!!!" I was the brunt of many jokes for the next few months "having wasted money on the purchase," spoke the mineral expert. The crystals stayed covered up in a box behind the front door in the hall for another year. In 1983 some of the

crystal specimens were sent to an associate researcher who lived in San Anselmo, California (North of San Francisco). It was she who first discovered many of the values of the Golden C Crystal, primarily named because of the golden harmonic light ray it gave off. I now lovingly refer to her as "The Golden Crystal Lady."

Another associate researcher in Arkansas, the finest agriculture radionic researcher that I know, was given some Golden C Crystals in early 1984. He became very excited by the materials and called it "Youth Energy." He analyzed the crystals radionically; his analysis of the Golden C Crystal:

(Li) Lithium 35%

(Be) Beryllium 61%

(Ga) Gallium 4%

The unusual combination of Li, Be, and Ga, with the above percent ratios, created the type of energy frequency I refer to as calcium-44. Calcium-44 is the king pin of all the calciums for the human body. It provides a frequency I liken to a giant reservoir from which any other form of necessary calcium can be transmuted. According to Prof. Kervran's biological transmutation, Ca-44 is the only type calcium that can be transmuted back and forth in the body from magnesium (Mg). Ca-44 is stored in the body as magnesium which becomes reversible

when body requires calcium. The integrity of the cell wall is guaranteed when adequate Ca-44 is available for transmuting. It is essential that the integrity of each cell wall be preserved for the DNA rootlets are threaded into the walls of the cell; that blueprint contains full genetic coding for a healthy cell to reproduce itself. When the cell wall remains strong, no miscoding can occur by the RNA, and body cell balance is optimally maintained. (Cancer is perfect example of a condition where cell wall integrity has been violated and lost.)

Research was conducted at a commercial turkey farm in Pennsylvania where leg breakages of young turkeys was approximately 23%. Force feeding to the young birds created abnormal growth to the turkey's body and the young legs were not able to keep pace with the growth to support the weight. Radionic broadcasts of Ca-44 frequency with other reagents brought the leg breakage to less than 3% within a 3 month period, as the leg bones of the young birds were strengthened.

Doing research with the Golden C Crystal, a homeopathic doctor in Oregon presented his theory for the discovery of the homeopathic 13th cell salt (Li/Be) in Spring of 1985.

In March 1987, an associate researcher living in Pasadena, California, sent me a copy of the book *The Miracle Nutrient: Coenzyme Q*<sub>10</sub>, just published in January. While reading along in the book mental bells kept ringing how very similar CoQ<sub>10</sub> and the Golden C Crystal were in creating similar positive affects for the body. For reader's comparison, analysis of the two:

Golden C Crystal			Twin Labs 10 mg CoQ <sub>10</sub>		
(Li)	lithium	35%		lithium	
(Be)	beryllium	61%	(Be)	beryllium	65%
(Ga)	gallium	4%	(Ga)	gallium	2%
			( <sup>44</sup> Ca	(44Ca) calcium-44 10%	

Very little is yet fully understood about trace minerals and how they may benefit the body's balance. I feel gallium makes possible super conductivity within the human frame. (For the reader, a newspaper clipping received in 1982 from San Jose, California, about gallium.)

"Question: There is a new company called Gigabit Logic that is into something they callgallium chips, that are supposed to be over 100 times as fast and efficient as the silicon chips used in computers. This technology sounds fascinating to me and I would like to know more about gallium and Gigabit Logic. What can you tell me about this?

"Answer: Gigabit Logic at this writing is not yet a public corporation. It was formed about a year ago by a small group of executives formerly with Rockwell International. You can write the president, Mr. Frederick Blum at his office in Culver City, CA. A gigabit by the way, equals one billion bits of information.

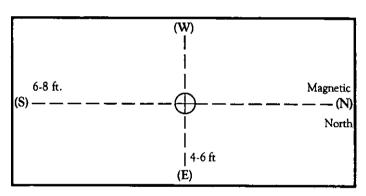
"Gallium is a very rare substance. It Is neither metal nor nonmetal and is a by-product of aluminum and copper smelting. It is so rare that a three-inch wafer costs about \$300 compared to \$5 for a slice of silicon.

"The secret of Gallium's speed is what chemists call its 'high electron mobility.' At a given voltage, gallium's electrons move seven times faster than those of silicon. At its highest speed gallium chips don't overheat or self-destruct as silicon chips do. Importantly, gallium chips only require one percent of the power that is required by a silicon chip."

 $CoQ_{10}$  breakthrough discovery speaks that it is an essential nutrient for healthy body cells; life cannot exist without  $CoQ_{10}$ . It is an integral part of the mitochondria, the battery or "power house" of every cell in the body. Disease/imbalance occurs when  $CoQ_{10}$  levels fall 25% below normal. At 75%  $CoQ_{10}$  body deficiency, death occurs. What a coincidence that the energy frequency of the Golden C Crystal and the

miracle nutrient  $CoQ_{10}$  are so very similar. Application of either assist to center one's being and a greater mental clarity for viewing as Observer is one of the results.

Occasionally I would set up a Golden C force field, for a minimum of two hours prior to a student's arrival, for a crystal clearing (see diagram below). Using four piles of Golden C Crystals, I would arrange them in a diamond shaped pattern with magnetic north (N) alignment. The student  $(\bigoplus)$  would sit midcenter in the force field also facing N. I shared information, what to expect and stated the moment the student started to feel uncomfortable any place in the body or experienced excess heat to stand up immediately and walk out of the force field. Time periods varied from individual to individual; eight minutes to thirty-one minutes was the variation in time requirements for individuals. (I am not a crystal healer, I merely set up the conditions for a student to do her/his own healing work with the Golden C Crystals.) An accelerated growth of consciousness, memory flashbacks of past life, loss of feelings of heaviness and feelings of joy and lightness. triggering of new ideas and greater release of creativity were some of the feedback reports. There were no reports of harmful side affects other than slight tiredness by two people the day following the crystal clearing. This same type of crystal clearing can be equally accomplished with four photographs of the Golden C Crystal as long as the diamond pattern is followed, the force field activated ahead of time and the individual positioned in the center of the force field facing N. Since a photograph carries the same energy as a physical crystal, the same instructions to walk immediately out of the force field when the body experiences discomfort or experiences excess feelings of heat must be followed.



The following feedback list was shared by volunteer researchers who carry a single Golden C Crystal in the pocket or wore the crystal as pendant or in a pouch around the neck:

- balanced and cleansed the aura of excess positive-ions
- aligned the 7 major chakras
- discharged "uninvited guests" (possessive entities) and sent them into the Light;
- keep the individual more clear headed and centered:
- it allowed one to keep his own energy aligned and not be drained by energy leeches, sometimes called psychic vampires;
- brought much more beneficial radiant light into the body which further acted as a balancing agent for the physiological well being
- tension and stress were released as body became quickly aligned with nature's energies;
- aligned the body meridians (when the electrical system of the body becomes aligned, it automatically aligns the magnetic system)

- felt a greater sense of general well being;
- the Golden C frequency passes through the astral and enters higher levels to which the student was able to connect which I call the golden spiral or higher mind;
- people acted more cheerful and pleasant when entering the aura of student carrying a Golden C Crystal;
- deflects harmful microwaves from entering the aura.

The above list is just some of the information reported, but a handful of the applications of this crystal, with its unusual frequency. The surface has hardly been scratched, for there are many more benefits yet to come forth. One does not have to rush out and buy a Golden C Crystal nor Golden C photo; always remember it is but a tool to aid your return to Higher Mind use. By writing the name Golden C Crystal\* with black ink on white paper, you will be able to bring the energy frequency of the Golden C Crystal into your space. You can close your eyes and feel that frequency pulsating in your aura. The letters of the word\* carry equal energy as the physical crystal. BELIEVE you can do it and you will!

An associate researcher in Denver, Colorado, has been utilizing the Golden C Crystal in a most fascinating way and obtaining marvelous results. She "charges" water with the energy frequency of the Golden CCrystal. She places a Golden CCrystal in a jug of water and removes the jug to a dark place for 24 hours. Presto—one jug of water available for use with identical frequency as the Golden C Crystal!!! After that amount of time, the water is charged for beneficial use by means of drinking and spray-misting. Drinking four ounces of Golden C water two or three times a day, along with regular drinking water, will aid in neutralizing and removing impurities and toxins in the body. Leave the crystal permanently in the water jug, and store the water jug in a cool, dark place. When the water jug is half empty add more water and the entire jug will be fully charged in 10 minutes. (One may also place one gallon of distilled water on top of a Golden C photograph or on a piece of white paper with the words "Golden C Crystal" printed in black ink. Let the gallon of distilled water sit in dark or covered with white towel for 24 hours—all 3 methods work equally well—if you BELIEVE.)

The Denver researcher uses the Golden C water in varying ways by spray misting and shared:

- freshens linens by spraying on bedding
- sprayed in room, acts like a giant negative-ion generator
- recycles energy and neutralizes negative thought forms
- cleanses the aura when sprayed over the head
- clears and cleanses most crystals instantly
- deodorizes rooms, breath, refrigerators
- replaces under arm deodorants

Some people in southern California are drinking Golden C water, stating it greatly enhances their vitality. One woman uses the Golden C water as a mouthwash/gargle and shared it has softened the plaque collection on her teeth so she does not have to go to the dentist as often for cleaning appointments. Others use the Golden C water homeopathically, by use of a pendulum they determine how many drops to add to an 8 oz. glass of drinking water and drink two or three glasses each day.

It has been noted that the charged Golden C water contains many properties similar to AQUALITHIA (natural mineral water) and Willard Water (a man-made catalyst altered water). The Golden C water does not have the reconstitution ability that the above mentioned waters do. A single ounce of AQUALITHIA will reconstitute

into 480 gallons, all of which are equally as potent as the original ounce. Similarly, one ounce of the Willard Water makes one gallon (128 ounces) of equally potent energized water.

Currently, research is being done by New Age Concepts (see below for information on contacting this company) regarding the use of Golden C Crystals in combination pure frankincense oil. Small pieces of Golden C are placed in a small glass tube containing pure frankincense oil. The tube can then be worn on the person, or placed somewhere in the home or workplace. When on the person, this combination seems to aid in the grounding, balancing, and otherwise processing emotional energies. It would also appear that this tube can affect certain physiological processes, resulting in lessened levels of tension and lower amounts of pressure in different areas of the body. On the person and in the workplace, this device apparently aids in clearing various types of stress and distress. Some testing has even been done on the Golden C-frankincense unit's ability to effect changes in electrical fields and electro-pollution emitted from various sources in the home and at work.

For those of you familiar with the B-Cell\* matrix that is used to "charge" water, Golden C water has a slightly greater energy frequency, but identical application abilities and similar results. (\*Later changed to D-Cell by new manufacturer when the original founder John Brown died.) Golden C water tested at 250,000 angstroms, or units of radiant light, using radies the sia methods. Comparing this to Holy Water from Lourdes, France, which tested at 156,000 angstroms, it is easy to see that the Golden C charged water is a remarkable substance, one that must be experienced to be fully appreciated.

# To purchase Golden C Crystals, or for information on research with Golden C, please contact:

New Age Concepts Elaine Jay Finster 94 Lark Lane Bailey, CO 80421 FAX: (303) 838-2282

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# TECHNO-SOCIOLOGICAL NARRATIVES:

# Firecraft, Metaphor, and the Technological Society by Marion L. Daye

Y last article was a sociological exegesis which hoped to define and delineate and distinguish certain fundamental ideas, especially those concerning the modern concepts of energy. Last time, I endeavored to illustrate the notion that our true and innermost conscious reservoirs remain beneath the grip of an inferior and artificial worldview; this latter "template" being the direct result of the social discovery and implementation of fire. Taking my examples from the mythical themes of various cultures, I traced the possible pathways by which the cultural discovery and social implementation of fire absolutely altered human consciousness. The assertion that "fire consciousness" too rapidly forced the externalization of human inner process was expressed. This was a conceptual presentation which hoped also to elucidate more on the nature and preeminence of consciousness in social survival, a purpose which I believe will be further clarified in this article.

Many writers have expressed the now cliched view that our Technological Age stands upon machine pillars, and that the very survival of Society itself depends on the supply of ready fuels in order to maintain the action of those pillars. This outrageous theme, which all too often expresses the self-aggrandizing views of the industrialists themselves, finds strength in the belief system which we have been methodically cultivated to accept. The single concept that "Industry rules Society," or that "fuel empowers Industry," is more evidence that analysts have not themselves been able to truly isolate the essential and pivotal item on which Society actually stands.

What then is the central driving force upon which all Industry stands? Does the development of Technology rest in the endless exercise of Scientific Method, or is there a far more esoteric power at work throughout the world? It is my hope that this article may advance a clear sight on the sociological issues, while remaining both relevant and revealing to the more esoteric elements at work in our world. It is my expressed belief that there exists a fundamental source of power, whose metaphysical activities completely suborn those forces on which Science has so fixed its thematic focus.

#### INDUSTRIAL AGE

Fire has a changing face. With every major social revolution, the chimerical face of fire reappears in a new form. Fire mutates the mind first, the first terrible lesson of alchemy. Whenever fire is reintroduced into social life, fewer and fewer individuals seek the reference of their own accessible dreams. Not the mythical seas themselves, but the social reference frame has changed. External display reduces internal vision. The content of dreams now seems to have undergone defined mutations. But the deeply driven dream seas, the archaic original reservoirs,

do not change their quality or nature with these social revolutions. In truth, the only fundamental revolutions having lasting effects are those which change human consciousness.

"And did those feet, in ancient times, walk upon England's mountains green?

And was the Holy Lamb of God, on England's pleasant pastures seen? And did the Countenance Divine shine forth upon our clouded hills? And was Jerusalem builded here...among those dark satanic mills?"

Thus begins the visionary poet and seer, William Blake, in his description of the early Industrial England. Green and flowing, the English countryside of Templars and Arthurian Legendry was quickly converted into an abyss of despair. The heavy pounding of factories, the sulphurous red flames, flooded the corners of dark infernal caverns. There, the sad white eyes of soot-blackened men and women were seen amid their forced labors. Faltering before the maze of whirling iron wheels, the lugging hiss of huge and laborious rocker arms, there the agrarian world was burned alive. There, the men and women on whose very lands the foundries were set, the throb of steam-powered hammers replaced the gentle herds of grazing animals. At times, a few poor souls looked out through a small square hole, perhaps a place where the sheet metal roof had been torn away. There, the longing sight a shock of hard blue sky for a moment.

The sudden exile of the once natural beauty was matched by the alien invader, the one whose conversion of the lovely landscape held no regard for the laborers who drove its engines. It seemed as though the very spirit and visionary life of England had been eradicated from the towns and villages in the grips of a new firecraft. While promising thrilling economic liberties, the mills and fire pits of English Industry waged a cruel war against both the bodies and minds of the lower class. The once wild and natural splendor of dark green wood hollows and sunflooded meadows, suddenly withdrew in a cloud of soot. Becoming a token dream memory of a lost world, the spreading hopelessness seemed ready to choke the very dream from the hearts of those who labored in mines and mills.

How did the English country people experience the Industrial Revolution? The severity of the sudden clash between the timeless Agrarian Age and the Industrial Age was far too much for most of the country people to bear. It was the sharp confrontation between soft green flowing hillsides and black burning steel mills. But the change of landscape was not the only offense, certainly not the only horror to which the country folk were exposed. The shock of landscape was accompanied by a demand for forced labor. With the absolute occupation of their lands by industrialist aristocrats came the slavery of the

gristmill. This first horror was one prelude to a stratification which has forever defined the society into which we have each come.

Those who knew only the freedom of an endless summer, and the sweet reward of an autumnal harvest, were now compelled to cruel servitude. The infernal conditions, hellish halls which thundered in steel and smoke, wiped away the waking memory of the sweet natural surroundings. Complete alienation from the former and traditional way of life, complete disengagement from personal independence, complete domination by the Machine, and complete absence of alternatives now locked the town folk into a corridor of Industry. An assembly line of firedriven process. Forced to perform strange and meaningless tasks to the beat of jackhammers, those who once tilled the land and lived from its fruits, became gears in the machinery of Industry.

While losing sight of the sun, the taste of the spring, and the blush of the rose, the common people also lost their inalienable freedoms. Instead, they received hard commands, the modern taskmaster's snapping voice instead of an ancient cracking of whips. That pallor which at first covered gentle old farmers and farmlands, was soon transformed into an abyss of Industry. There the dreams of the many were burned alive for the dreams of the few. The dream wealth of the common people was drained away in a nightmare of slag heaps and black lung. All the while, a small number of aristocrats managed to reap the fortunes. This fire-gained wealth soon secured favor and titles for the few. With their newfound wealth and authority, the aristocracy compelled their workers to do obeisance or suffer ill-consequences.

The requisite bowing of the knee, the commanding voice, these were the insults added to the injury of that living death in the mills and mines. The selfish and self-centered upper class was often angered to violent acts, especially when denied their daily fortunes because of soon striking work forces. Treating their dying work force to unspeakable indignities, they went on "forthright," fulfilling their own dreams. Children's children gave their dreams, labors, and lives to the mills, to the forges, to the seasons. Limbs, muscles, strain, and tears into the searing vision of the all consuming fire. The fire ate up all the forests, all the hills. Black coal and blood, thick fuming oil, spittle, curses, drink, and tears.

All their dreams went up through huge smokestacks, belching profane and acrid vapors to cover them. The evaporating visions and dreams were thus joined with the burning of fuels, a satanic message to hasten the dying of the laborers. The tide of fire, the enslaving grip of the Machine Age, seemed to draw away the breath and life of every dream until hope was nearly gone. The mining towns, where old mothers buried young sons, would become the proving ground for society. The watery suffering of the many for the firecraft of the few would release an ancient consciousness, a pure consciousness. The modern resurgence of the dream sea began shaking the English earth, until such a sufficiency of aberrant science had made its appearance, that even firecrafters found themselves compelled to depart from their forges to investigate the wonder.

#### FIRE ICON

Modern situation is not the result of contemporary revolution. Modern situation is the result of social millennia, where contrasting perceptions and ideas mold the mind of humanity. To know the modern plight, one must comprehend the ancient origins. For the study of social consciousness, and the revolutions which have modified that consciousness, there are no better histories than those provided by

myths and song cycles.

The light of consciousness, as originally enjoyed by very ancient cultures, was an experience of the world completely different from that known in our Machine Age. The difference between ancient and modern consciousness is revealed in the very obvious perceptions and metaphors of which poets sing. The severe change among all ancient myth and song cycles reveals the shift, from water myths to fire themes. This realignment of attention provokes a series of powerful influences on the development of human consciousness which, through the millennia, has mutated consciousness into its present state.

Archaic humanity absolutely revelled in the wonder of consciousness, learning how the observance and obedience to images of the dream reverie literally became group survival. There were those who sought the imagery of the past, noticing its blends in the company of those special images which flooded inward from external place. This was the secret power and guidance which defined human culture, human civilization. First and foremost, humanity learned of its own precious reservoirs, its imaginal seas and rivers. Those guiding streams, which historically led us unscathed through a wilderness of dangers, have not abandoned our society. So remarkable is this constancy, this trustworthy bond, that we may easily follow its numerous manifestations throughout the history of technology.

Survival often requires virtually instantaneous decision making. Ancient humanity was able to precisely discern natural manifestations, necessarily making unerring accurate pro-survival decisions. Fire was naturally abhorrent to the sensitivities of early humans, who refused even to approach the manifestation. We recall that fire was taboo, a forbidden thing to touch. Only the dull members of a tribe dared touch fire, those who later would become both firecrafters and rulers.

If we state that fire itself was never intended to have been touched by humanity, we will find ourselves receiving a hail of loud criticisms. Such outpourings can only be expected from a society which has been literally trained to ignore its greatest gift. But in the absence of such sensitivities, the notion that fire is "an environmental aberrant", requires further comment. Fire singed the imaginal reveries, the first signal that it was a questionable item. The imaginal reveries never failed humanity, else it would never have survived in the absence of all of its subsequent tools.

In the supposed absence of simple awareness, humanity survived millennia of wandering, where even edible foods were questionable. Humanity survived because, by observing the guidance first in everything, it avoided disaster. As poisonous foods were recognized, so was fire. And fire was never to have been touched, much less grasped and captured. Sensitivity refused fire when it came among society through the agency of sense-defiant individuals. The schism between the sensitives and the insensitives thus emerged, a schism which has resulted in a clearly defined duality of science and technology. But to what did those sensitives cling? In the very midst of cultures which now placed heavy reliance on fire, to what agency did the sensitives now cling? What comprised their science, their technology? Fire impressed the eyes, the touch, the outward senses. What superior thing could the sensitives now claim in challenge of fire?

As insensitives kindled their fires, sensitives rekindled their devotions in the old water myths. They may have literally also sought watery locales, perhaps departing from their tribal groups. The forceful refusal of fire, and the culture of firecraft, demanded a schism. Thus refusing the utility which firecraft gave, the sensitives limited their own geographic habitation for a time. Sensitives who fled the use of fire may have been among those first few who stood apart as true individuals, the first true evidence of civilized behavior.

Fire was a poison, and intuitive reverie repelled most humans from every one of its manifestations. Only the most insensitive and brutish members of a tribe would run into a dangerous situation to grasp and retrieve the fiery brand. In this simple consideration, we understand the beginnings of a social stratification which has produced two very separate sciences and two very separate technologies. Since the insensitive, and more visceral tribal members defied their natural instincts, they first assumed special leadership positions. No longer submitting to the suggestions of either their own imaginal reverie, nor the advice of the tribal sages, such individuals quickly established themselves as powerful rulers. They used fire to achieve the otherwise impossible feat. Impossible, because these were not the most intelligent individuals. Sensitive intelligence kept itself far from the seductive red flames. Sensitive intelligence recognized that fire would die when left unfed. And water, especially water, would quickly quench fire. The warfare between firecrafters and dream sensitives began immediately, an expected duality.

Despite the power gained by owning fire, those first individuals who "captured" fire found themselves in possession of a terrible deceiver, one which demanded more tribute than the glory it gave. Ancient myths recount the tale of Prometheus, who stole fire from the gods. If indeed gods, then fire was stolen from an abode of hideous monsters. On social retrospect, one might agree with the judgement meted out by the gods, whose assessment of Prometheus seemed ever so cruel. On second examination, his daily torment is justified. These lessons existed into the Middle Ages, where folktales told of the fate of men who captured genies, and their imprisonment by forces more terrible than they could ever have imagined. Fire demanded sacrifice, the food of dead forest limbs. The necessary conscription of fire stokers quickly became enslavement, as tribal members realized their subordinate poise in the chain of social power.

## DESCENT

Fire kills Nature, and all natural images. Fire captivates the eyes and sears the mind. Fire, and its every new manifestation, changes society by changing consciousness. Whenever we observe the complete loss of quality, beauty, fluidity, and the usual enthralling power in mythological cycles, we identify the inception of firecraft in a culture. Fire technology removes natural beauty, natural color, natural texture. Fire, the devourer of forests, replaces natural glory with color. This is especially found true with the traditional sagas of warrior nations, whose imagery is stark, harsh, and burnt to ash with war fires.

The vacuousness of the Machine Age is the direct result of firecraft and its now-internalized lessons. Fire destroys Nature. Fire pulls the life out of the forest. Fire leaves devastations behind its paths. Fire destroys the world. Fire exists at the expense of all Nature. Fire produces the vacuum. Fire produces the mind of vacuum, that which has totally dominated Twentieth Century thought. It is a phase which must shortly come to a predictable end, as the annihilating threat of that consciousness is a lie.

Lessons learned in the Machine Age are completely devoted to this Technology of Fire, a burning trail. Firecraft has left its vacuous trace on those who are pulled by social custom into its complete allegiance. These conscious revolutions occurred in the most ancient past, virtually

before the art of writing enabled the recording of specific names and incidents. Nevertheless, and very fortunately for the student of sociological themes, their histories are outlined throughout the volumes of ancient mythology. Understanding the ancient cultures and their sad relationship with firecraft helps us, both to perceive our own period, and to discern the loss of sensitivity which has already befallen the populace.

A frequent and redundant statement mentions fire as an agency which "stimulated humanity." The prevailing social rumor teaches that fire stimulated humanity into new abilities. It is also rumored that the latent awareness of humanity, having been too long dormant before the advent of fire, was thus stirred into consciousness. Those who endorse this lurid concept also believe that fire caused humanity to "awaken" from its "long dream." This horrid notion, something of a byword among sociologists who discuss technological issues, is gauche, unenlightened, and most revealing. The statements reveal a definitive and incomplete philosophy, the frequent bane of modern science.

Cultures which fell under the captivating spell of fire were forced out of their sensitive awareness. Swimming in warm dreamy waters, the primal and natural consciousness of humanity was prematurely disturbed by the flickering light of fire. The lure of the luminous deceiver forced a quizzical challenge. The resulting human imposture consisted of a hasty and improper externalization of consciousness by an unconscious agency. The fascination with fire dispelled the former effortless dream reverie, that by which humans were guided for millennia throughout the world of survival. Fire made the dream reverie unnecessary, or so the possessors of fire believed. Fire was brighter than the dream reverie.

Though it hurt the eyes, it focussed the senses...outside. Fire was painful. Those who did not keep their outer focus, often became the victims of fire. Watching the fire, an occupation which now demanded more and more responsibility, one forgot the old imagery. The old imaginal reverie which guided and warned, which spoke in the night of danger, which spoke of water and food and opportunity, was lost. Firmly locked and armored behind the vacuous "outer" fixation of firecraft, individuals became captives, Captives of an empty light. Fire, being unconscious in nature, captured and blinded those who allowed it entry into their minds. The outer fixation of the conscious process had damaged human ability to perceive. In possession of fire, societies no longer sought their dream comforter.

Only in sleep, were the reverie had been limited, were the most sensitive individuals able to remember their lost inheritance. Relegated to the underworld of sleep, the reverie which flowed through all of Nature was now imprisoned. And fire had locked the prison door. Ancient persons became deceitfully misled by their fiery tool. But becoming powerful through firecraft, they rather misled their cultures rather than forsake their own claim to power. In time, the innermost dream tides of certain cultures were now sufficiently walled behind the new awareness as to be forgotten. Certain cultures lack memory of the water myths, notable among these being the Northern European hordes which used fire as weaponry.

Those who were devotees of fire became the captives of a new and insensitive mindset. Firecrafters began to teach a new battery of life lessons to their tribes, cultures of cruelty emerging with the progressive lessons. Few developers of early technology thought in terms other than fire. In ancient Persia, fire was literally worshipped. Fire forced the dream reverie down into inaccessible depths. Most individuals were never able to retrieve the lost paths which led into the dream seas. The

human search, or journey, for this "earth center" has been a repetitious theme throughout all the ages.

The archetypal reverie being totally ignored by certain cultures, more and more individuals focussed all of their immediate attentions upon fire and the keeping of fire. These cultures moved out across the world not as cultivators, but as marauders. We discussed the cult of firecraft, that which dominated cultures who had discovered its uses. Barbarians repeatedly emerged from their fire-dominated haunts in the northlands, seeking to invade and plunder the warm southern climes. How often were the great Mediterranean Civilizations forced to defend themselves against the firecrafters?

The focus of fire produced an unnatural cultural fixation, one which had not been directed or guided through the natural imagery process. Perceptual blinding first occurred among those who kept the firecraft secrets. Others became naturally dependent on these firecraft guilds, a pattern which we may trace throughout history. This relationship, between fire guilds and social dependents, exists today. The utility guild keeps its machines and secrets safe, while consumers pay exorbitant funds to maintain the electrical fire. It was thus that fire empowered a new consciousness, a distorted consciousness whose effect was separation from the environment.

But it is too frequently stated that Society depends upon Technology in order to survive. In its present form, Technology is so overwhelmingly flawed that we may actually question this modern axiom without fear of too much reprisal. The clicke which poises Technology in the throne room over human survival cloaks a more fundamental flaw in the perceptual repertoire of engineers. Firecraft is not the Technology which can succeed in the future, a statement which will find adequate criticism among the engineering community. But there are deeper energies than those which produce fire, and those which fire produces. There are powers, whose rulership in the world undergirds and undermines even the very concept of firecraft. What then truly fuels the forges of society?

#### **METAPHORON**

Alienation from Nature characterizes our Machine Culture today. The numerous frail attempts at rejoining the natural communion of our lost early period is fraught with desperation and disappointments. Jung was astounded to discover identical images and archetypes in the dream treasury of impossibly separated societies, a condition which could not be traced to post-Pangean migrations. The first mythological themes had nothing to do at all with fire. The first mythological themes were enveloped in water. Water myths represent the primal, natural, and historically developmental fund of human consciousness.

The water myths represent the reservoir which transcends all human states, imagery more directed into the mind of society than inherited. Are there no instances in which imagery simply appears to a needy humanity? Thomas Edison once stated that "ideas come from space." Such a statement is not lightly taken, spoken by a such personality. We would expect creative persons to have complete familiarity with the imaginal reverie. The creative life of such individuals is entirely occupied with abstract thought, evidence of an awareness concerning the true source and nature of imaginal reverie. One cannot rejoin Nature without a complete reversal of consciousness, a perceptual commodity which requires special stimulation, and gradual reeducation.

The sources of thought, idea, imagery, dream, and myth are

external and truly mystifying. Many have ascertained these sources to be external, the spontaneous receptions of providential ideations. Others have stated them to be equally eternal, a phenomenon of sentient space. Absorbed in such archetypal seas, the ancient people were not forced to cease conversation with their physical world. In fact, they recognized the fact that no difference truly existed between either "internal" or "external" worlds. The ancient cultures slowly discovered that experience is awash in the flowing imagery of consciousness, waters which both "flow in" and which "flow out."

Nature is very obviously the repository of imaginal information, an energetic flow of imagery which permeates the material world. Only in the ocean of visions and ideation do we find true context and meaning in the world of our experience. Consciousness is completely saturated in the enormous imaginal background. Certain sensitive individuals are able to literally envision the archetypal structures in which material things are set, the connective and meaningful wholeness between and among all objects. Imagery flows through us with every glance, a "darkfield" of impressions which accompanies our every perception of the environment.

Yet, as the natural background of our world experience, most people remain absolutely unimpressed by the fact that they do receive impressions. This amazing phenomenon indicates the degree of dullness into which most people have descended. Unable to notice this greater portion of their experience, most fail to recognize the wonder of their own consciousness in the world of consciousness. In this very same absence of awareness, scientific assessments of Nature become thoroughly limited. The insensitivity to our own simple potentials provides us with numerous proofs for our fundamental fire thesis, that which claims firecraft as the single most consciousness devastating discovery of human history.

Most people have accepted the training by which they are empowered to ignore everpresent imagery. The natural perceptual space, in which they are naturally made to flow, becomes an inexplicable offense. Whether experienced with or without its accompanying emotional flood, ancient people knew what Freud referred to as the "oceanic experience." Called by the ancients "the Muse," the experience of heightened inspiration is well known by great artists, musicians, and creative scientists. Though now rarely recognized as the fundamental component of the natural world, imaginal reverie formed the very basis of ancient world models.

Consciousness is fluidic. Its natural flow occurs through the perceiver, from dream reverie to external action. Consciousness flows through the world, we capture a few images from this eternal flood. Natural perception, deepest perception, occurs whenever the imaginal reverie finds fusion with the external environment. Archetypal guidance led ancient exploration into environmental action. Humanity has been absolutely reliant on the flow of imaginal energy from its inception as a culture. Apart from this primary stimulus, humanity is inert.

Without strong contact with this primary expression in the world, we remain without changes. Without this recognition, without this revelation, humanity cannot transcend its fundamentally static nature. Reverie in the dream sea allows us to explore our own true nature, along with the discovery of the true and fundamental nature of the world in which we live. It is a journey into a world without physical boundaries or the rules of physics. Ideas, visions, thoughts, and dreams: each comprises the currency of a watery dream sea. Each is capable of reteaching humanity the vital nature of the world in which we live.

That sea, whose pulsations flow through us, rejoin the alienated senses with the external world. Together, the endless, ebbing tide of consciousness flows throughout the world.

The world full of inherent constructions and rich meanings is an experience of which few have experience. The experience of imaginal reverie often elevates the individual into a heightened awareness of all things immediate. In this state, we often "know beyond" the confines of our immediate environment. Descriptions of this experience include the sense that one is being carried deeper into reality. Others tell of being "swept away" or "swept up" into an exhilarating space. During such extremely moving episodes, such persons make startling discoveries.

Viewed through the vision of our deepest inspirations, the world ceases to be a mechanistic clockwork of interacting parts. Viewed through the dream seas, the world is endless, boundless. In its living expressions, many which have ceased to be considered scientifically plausible, we find ourselves rediscovering what was lost in childhood. We have need of again regaining that perception and flow known to children at play. The personal revelations, acquired through a vibrant refusion with the dream seas, cannot be assessed by scientific method. The hard shells of the heart broken through during such episodes of dreamy reverie, one finds unmatched continuity both within and without. The imagery, normally attributed to an "autonomic" source, finds amazing continuity and synchronicity with the environment.

Experience flows through us. The metaphysical energy which floods the world, graciously allows us to participate in a developing experience which occurs without ceasing throughout the world. Ancient philosophy established that the world was not made of matter. It was made of metaphors. The metaphors produced and sustained the world-matter. Meanings and metaphors, the abode of Divinity, upheld the world. Space was not a vacuum, where kinematic activities played out meaningless motions. Space was the metaphoric sea in which matter was generated and worlds were rigidly structured. Meta-phoron literally means "after having been brought," a reference to the essence of meanings and messages which have been carried to visionary sensitives.

Metaphors surge and vibrate throughout space, and materials become their hosts. Metaphoric passages, strophes, modify and change the world as often as they surge. The dynamism evident in the world is then the pure result of directed metaphors. The attentive culture is taught each secret and providential meaning which has been carried or "brought" into its developing awareness. The archetypes are visitors. They were known from ancient times, whose explanations exceed all human context and social reference. The dream seas exceed our prehistory, our ancient, and our present history, being external and immortal. We find ourselves then the recipients of gifts whose origins are mysterious and exotic.

The world without this flooding sea of consciousness is not the whole world. This conscious space alone grants freedoms to the far reaches, beyond the choking confines of our immediate and overwhelming topography. In the conscious freedom of our archetypal seas, we are no longer the prisoners of Newtonian kinematic principles. These metaphors, these ideas, are not the result of human thoughts...not, as the eastern religions teach, the autonomous constructions projected out by our own minds. For the Western mystic, metaphors are the projections of Divine Mind, projected expressions in creative organizations. Space is the conscious flood of images and meanings, whose conscious

structure is fixed in a hierarchy of levels.

## **SUBSTRATUM**

Natural consciousness, whose language is expressed in thematically contiguous dreams and images, has been pushed back into such a deep substratum of modern awareness that its very manifestations are now termed "paranormal." Natural consciousness is the wellspring of civilization. When this source is, by whatever means hindered, society as a whole falters and ultimately fails. The hindrances have historically been few, usually the result of parasitic and artificial perception regimes. These may or may not become socially enforced by convention. The nature of these parasitic perceptual regimes is first to limit the perceiver in the act of participating in outer activities.

History repeatedly proves that any perception of the world, in absence of the dream reverie, stimulates the development of parasitic technology; that which has characterized the entire Machine Age. Collecting and congealing all about the Fire Icon were tool and work images. Now, the lessons which were learned through fire, became amalgamated into a new body of images. A body of fire images literally incinerated all memory of the ancient archetypal waters. The external demands which fire placed on societies now attacked and pressed upon the ancient dream reservoirs, until few recalled the splendor of their performance in desperate circumstance. And Society entered a downward phase, demanding the sacrifices of fire. In a modern recapitulation of this dark drama, the sweet dream of an Agrarian Age was interrupted by a new and more overbearing firecraft than humanity was ever wont to witness.

The view that "social survival depends on fuel" constitutes yet another body of propaganda which Industrialists of the early 1900's have successfully disseminated on a worldwide basis. Contrary to the tired and repetitious sociological thesis on fuels and Industrial trends, we may discover far deeper foundations on whose pillars Society actually rests. The pillars which emanate from these deep foundations are neither machinelike nor fuel-consumptive. In truth, the deeper theme which address the relationship between Technology and Society has nothing whatsoever to do with either Machines or the supply of fuels.

The perceptual "orthodoxy" enforces the "right experience" of the world: a view which is fire taught, and which is designed to serve the firecrafters.

Once endorsed, this orthodox perception, an artificial perception regime, destroys consciousness. When these artificial regimes have been successfully endorsed and properly placed in any culture, for whatever purpose of control they have been devised, several reactions occur simultaneously. First, there are those whose innermost sensations become absolutely incapacitated. This was the first result of "fire culture," where the natural floods of consciousness became walled up within. Second is the death of sensation.

Gradually submitting to this fire-sourced doctrine, we are taught of the "inertness" of the environment. This descent away from full awareness does not cease with the loss of childlike animism. We are taught to ignore our deepest and most beautiful reverie. Third is the stasis of the culture. Cultures which have become fixated in firecraft, at whatever possible level of development, cannot grow. The continual emergence of fire-defying technologies has been the legacy which visionaries have historically left behind.

Fire has been a periodic invader, whose destroying presence disturbs

humanity as often as it comes. Whether as flint or uranium, the periodic rediscovery of fire brings with it terrible consequences for human consciousness. But the actual means by which firecraft drew humanity away from the body of naturally prolific dreams and archetypes is a study which must be more closely examined. Only then might we realize the depth to which our present social structure has been largely led away captive into a ruinous sequence of scientific miscomprehensions and illusions. These are issues, both personal and social, which may be endlessly emphasized and reiterated. They represent the basic lessons in consciousness which humanity must recall

Fire and firecraft progressively urges humans away from their guiding reverie. The improper application of consciousness is a direct result of a gradual refusal to wait for the lead of this reverie, while acting impulsively in the environment. Produced in a sequence of increasingly willful actions, humanity begins ignoring more and more of its dream foundations. Endorsements of fire consciousness today begin as coercions at a young age. Children are made to quickly pass through a recapitulation of the entire social journey, from water myths to fire myths in a few weeks. When in their early school years, children experience a period of intense personal distress which they are rarely able to express.

Confrontation with the consciousness which rules the present Age strikes children as cruel, alien, frightening. They are challenged to develop a distorted and forced thought style which so completely defies their own dream reverie, that many engage a familiar surreal and nightmarish period of unrest. When children are methodically trained to become focussed on the external, in absence of any personal conscious leading, they lose individuality. Forced to conform within a rigid command structure, they become members of a group mentality. Lost to themselves and their own innermost movements, children are trained to focus on objects in the environment; being taught to mechanically respond only to specific external stimuli. After the rigors of schooling have sufficiently eradicated portions of their independence, children experience a peculiar period of lassitude which parents fail to recognize.

The suppressed creativity in children requires reorientation, a parent-guided tutelage which may be restimulated through a great variety of sensory channels. In the home, children exhibit momentary lapses from the enforced conformity. Their sudden and voracious appetite for imagery and reverie can be solidified through art or music, storytelling, or play acting. But the social enforcement of imaginal reverie suppression becomes an effective fixture in the life of the individual. Older children cease noticing the symbols and metaphors with which they were once so completely taken. In this mode, neither children or adults are fully human.

The Technology of Fire, while boasting of its elevation of human utility, has actually degenerated the full capacity of human consciousness. Brought down to levels which approach animal perception and response, humanity has largely lost touch with its deep and prolific imaginal reserves; those oceans whose waves surge among our perceptive capacity and throughout the external environment. To lose touch at this level in our conscious faculties, is to lose touch with the deepest reality base from which all things emerge. Because of this lost touch, an inappropriate Technology has been developed to an obscene perfection, while an inadequate view of the world has proliferated a distorted view of energy.

## **METAPHORON EPIPHANIS**

The principle difference between ancient science (philosophy) and modern science exclusively exists in the realm of awareness. Ancient philosophy was visionary science, and explored the metaphors which made the world. Visionless modern science explores matter. Because of this, ancient intellect found very natural the inclusion of all things perceptual and mystical among the physical study of the world. It is curious to find the modern rationale for its material fixation in a so-called "progressive" or "advanced" examination of the world-foundation. How curious that, in the ancient view, consciousness and matter are connected; while modern views establish complete separation between consciousness and matter. Despite this modern dichotomy, there persists an annoying reminder of the ancient mind. The mechanistic speculations, in which the sciences are snared, have produced a vacuum which the modern mind abhors.

The modern mindstate continues to be pressured by the persistent and inescapable demands of the archetypal seas, waters whose waves pour in on all sides. These metaphoric floods cannot be stopped by conceptual edicts.

Metaphors and their meanings were said to exist in an eternal gantry of consciousness, whose source was beyond humanity. The ancient cosmology of particular cultures most accurately referred to two generative loci: the generative source of outer space, and that generative source beneath the world. The rootworks of the world were simultaneously poised among the stars above and in the worlds beneath. These two deep caverns, the astra and the bathos together, resounded with pure metaphoric power. A singular generative persona projected forth and maintained the visible world of matter.

The archane sciences placed the world foundation in consciousness, not in matter. Above, around...beneath the earth...all was consciousness. The true and generative source of the world emerged from various spaces, habitations of the Divine. The most ancient myths of numerous cultures placed the ocean of archetypes in the aerial heights or in the subterranean depths, fixing their conscious source in either one or the other stratum. Each generative realm, both above and below, was joined together into a unitary singular. The dream sea washed the earth, from above and from below. The heavens originally were called the dreamy metaphysical "knowing waters," the Oura-nuus. Only the firecrafters called space the fiery æron, or the ætheros; an abode where humans were forbidden to enter on pain of a burning death.

According to ancient science, materials were crystallized from metaphoric clusters. In this view understanding the world dynamic requires an instant identification of metaphors: an instantaneous report of fluctuations in the metaphoric space. Strains and tensions manifested when metaphors had moved through the world. Tensions and devastations resulted when metaphors, especially sent to humanity, were left unheeded. Until the meaning that governed a tension was realized and the lesson learned, humanity could expect continued punishment.

Sensitives and seers, natural visionaries were prized for their ability in this regard. Metaphor was primary. Therefore, the ancients placed greater emphasis on the musical, poetic, and visionary sciences, since these stimulated a far deeper contact with the preeminent world-shaping power. It was recognized that any such first contact with the incoming messages, the supernal metaphors from the Divine spheres, represented cultural survival. To remain ignorant of the metaphoric progressions at work in the world might be to risk certain doom. Careful

observation of the local metaphoric content constituted the instruction of scholars and their students. The science was necessarily an experiential one, the full exercise of the senses external and internal being of fundamental importance.

The result of physical proximity, or direct contact, with the metaphoric currents, greatly stimulated the visionary sense. While completely personal, these experiences are not the same as those equated with the mediums of Delphi. Those who ventured into the dream space from sacred locales, found it possible to explore sudden transitions of awareness...stable states of mind which were achieved through progressive and prolonged conscious elevations. The minds of priests and sojourners were very literally super-sensitized in these sacred locales. Such persons were therefore so modified that they were enabled to perform normally impossible tasks.

Visionaries carefully considered the forces at work in the earth. In their collective activity, the various forces were the result of metaphoric activity. The mere presence or movement of metaphors through the earth was thus viewed as a sufficient cause to produce blessings or punishments. Metaphoric power was the all-powerful energy over the world of matter. A divine energy. Nothing could resist the passage of metaphoric energy. Once expressed, a metaphoric procession could raze empires. Storms, earthquakes, vulcanism, all these were produced when punishing metaphors were sent through the earth. Fair weather, gentle showers, floral profusions, seasons of plenty, all these were evidence of providential encouragement. The inherent morality of social groups determined what metaphors would be generated.

Matter was not world-primary, conscious was. Humanity recognized itself unique among the natural beings, realizing its conscious treasury. Ideas, thoughts, visions, these were the defining characteristics which made us human. Specific holy places were recognized by their excessive dream potential, their remarkable power in producing overpowering streams of metaphors. The metaphoron epiphanis, the "outward showing of that which had been brought." Brought from where? Brought to human sensitives from the imaginal seas. The holy dream places became the particular loci where the space mind was clearly seen in its operation, an access to the operation of Divine Mind itself. Persons who found these places all-compelling became their priests and priestesses.

Unwilling to leave the locations, where dream reveries surged with special daily force, those who had been too long bound by the vacuousness of firemind first sought their own healing. Then they were able to guide newcomers into the experience. Metaphoric energy is fundamental power, more than all the energies which modern humanity has thus far evinced. To the ancient priests, metaphoric energy was an overflowing local manifestation of the creative presence. There were those who viewed these holy places as receiving sites for the messages from the stars, others viewing their locations as receiving altars from seas in the deepest caverns. In each of these locales, the secrets of accessing this creative power became gradually known. The emergence of these secrets suddenly reduced the importance of fire, while the suggestion of a new technology began to emerge.

#### **PHOSPORON**

In its ancient environmental presentations, fire represented a distinctly different element. In the natural environment, fire was completely unlike any other thing. The fascination with fire ended when with realization that fuel was needed. Fire ate the dead limbs of trees.

To make fire grow, living things had to be dead. With the loss of available dead limbs, trees began to be ripped down by tool-bearing humans. Fire lived as living things died. Fire represented a reversal of all natural order. Whereas all things in the natural environment grew constructively, fire "grew"...but grew deconstructively. Fire was the eater. Fire grew at the expense of Nature. Fire ate the life of forests. Even as did fire, so firecraft grew at the expense of consciousness.

As fire itself represented a negative growth process, those who were absorbed in firecraft withdrew from their former communions with Nature. The firecrafting method was taught, from firecrafter to apprentice; the tutelage and legacy of fire technology. In this guild of fire, individuals gradually learned how to respond to mere external stimulus. Devoid of the dream reverie, the guidance which once led humanity into its deepest and most satisfying discoveries, cultures became fire-fixed in a vacuum of their own making. Incapable of realizing their deepest conscious potentials, the progressive development of firecraft has filled the history of our world. Now referred to entirely as "Technology," engineers learn firecraft and the methods of conscious approach to problems germane to firecraft. But at what cost?

Of all natural manifestations, fire was the antithesis of Nature. Fire was the destroyer of Nature. Early humans knew this much. Never meant to have been seized by humans, fire was an entity which Nature sought to eliminate. Fire was the breach by which forests were consumed. When released, through volcanic eruption or lightning strikes, fire became the reversal, the derangement of natural order. Animals fled from its painful presence.

So what would compel certain tribal members to grasp after fire? Superior curiosity? Superior courage? Most sensitive humans fled from fire by intuitive sense. Those with visionary skill recognized fire to be far worse than a destroyer of matter. Fire was perceived by these few as a destroyer of consciousness. There was a distinct difference between the world which the dream oceans revealed, and that which was revealed in the gauche glow of fire. Perhaps, as no other consciousness-producing force, fire divided human perception.

The pain and shock which fire produced among its first human handlers placed an absolute schism between images internal and images external. This schism between visionary experience and physical experience is yet one which has produced its controversial social expressions. Illuminated by the conscious seas, the world lived. Illuminated by fire, the world died. Fire was a deceiver. In this terrifying realization, the once wonderful element of fire suffered notable reproach, a condemnation once thought impossible. In time, society became so thoroughly familiar with all of the fire attributes, that the novelty of the element actually lost its magical appeal.

The power of fire over human consciousness would soon lose its grips, as natural sensitives began to consider the real nature of fire. This philosophical study placed fire in the lowest possible consideration, fire itself having been demoted to the level of the ordinary. Now, whenever mentioning fire, philosophers would find themselves dreaming and envisioning a flood of metaphors. The dreamy seas had made their reappearance. In the thoughts and words of ancient philosophers, those naturally gifted sensitives, fire became of secondary importance once again. Comprehending the nature of fire revealed it to be no god or divine agent. Fire very quickly was demoted to a minuscule status in the order of things. Fire became a small epithet in a larger metaphysical space. How did this remarkable change in fire devotions occur? How did this new knowledge come about, especially from a culture which

made such use of firecraft?

The discovery came through a group of special individuals who gathered around a teacher, named Socrates. Careful study of Socrates, and of his student Plato, reveal that the philosophers were far more than scholars or public speakers. Contrary to all of the historical references, the philosophers were actually a group of natural sensitives, whose method of inquiry was actually an exercise of the visionary gift. It was obvious that Plato exercised this faculty, and selected students who also demonstrated the rare gift. How curious that these sensitives managed to regroup and rediscover their powers and purpose. Having Egyptian origins, which are rarely mentioned when speaking of Athens, "philosophical inquiry" was actually "visionary examination." "Looking through" ideas and objects was a regular occupation for these sensitives. Placed in its natural sacred place, the Academy of Plato began the methodical investigation of all things physical and conceptual; a visionary process which required no instruments or laboratory.

The rediscovery of imaginal reverie brought about a renaissance in the way European scholars would subsequently view the world. The consideration of perception and cognition produced an intriguing and compelling visionary progression. The Platonic discussion of divine projections and form, of matter and space, of perceptions and consciousness, were not easily dismissed by later centuries. The advent of experimental science tested the visionary awareness produced by philosophy and, misjudging the exact meaning of those discoveries, concluded philosophy to be a worthless and wordy banter.

Metaphors collectively represent the deepest foundation of the world, the true primum materium mundi. Philosopher-sensitives rediscovered the physical world to be an interwoven projection, the solid product of intangible metaphors. This ancient discovery required active exercise of the imaginal vision, an ability taught by Socrates through example. Discharges of imaginal energy occur between sensitive individuals and special earth locales. These discharges are highly enriched with vivid and meaningful imagery. They produce understanding in their recipients, who often recall very densified metaphors, the means by which humanity is instructed to make real advancements in civilization. The discharge process is one which continually occurs among us, though all too few persons take special note of the activity.

Plato discovered that metaphors ruled matter, that matter was a generated outgrowth of metaphoric projections. A reexamination of every experiential facet endured the long hours and endless scrutiny of sensitive visionary process. Now, through this sensitive examination of all things physical and conceptual, the Athenian sensitives began to rediscover the archetypal seas. Having thus quickly recognized that metaphors were the supernal foundation of the world, The Athenians also considered fire itself. Their imaginal reveries had long revealed a light which did not harm those who approached it. The "dream light" which appeared to visionaries was not the same as the light of fire, which burned and caused pain.

Recognizing that fire itself was but a vessel for a more divine essence, fire was no longer the exalted element which so many had literally worshipped throughout the centuries. A "metaboli" or "revolution" occurred in human consciousness. Again emerging from among the sensitives, deeper and more penetrating insights concerning the world impacted the social mindset with new and inescapable force. Demoted to the level of a mere vessel, or inert tool, fire was now viewed as a mere servant of "metaphoric light." It would never be worshipped again. Earthly fire was a corrupted effect, one resulting when the metaphoric

dream light entered the world. Accordingly, the terminology for fire endured change. Phos was the term for fire at one time. Now Phos was taken to be "light." Phos-phoron meant "bearer of Light"...a new reference to earthly fire.

The Greek term gave remarkable evidence of a new awareness, that fire itself is not an immutable thing. Whereas the divine and metaphoric fire had pure attributes, earthly fire was viewed as a corrupted manifestation of the more wondrous metaphor. But if earthly fire was but a corrupted host for a "pure light" metaphor, then what was the nature of "pure metaphoric light?" This question sparked a quest which would endure for centuries, the search for a magic light which required nothing more than the metaphoric energy which made it. The search for a manifestation of light without fuel...the search for an eternal lantern...propelled ancient mystics and alchemists into unknown paths. The power of this image has been preserved throughout all of the myths. It remained a potent impetus for researchers during the early years of our century. "Philosophical inquiry" is a phrase which properly means "visionary discernment."

#### METABOLI

Firecraft and its attendant consciousness have forever forced the powerful reemergence of the primal reverie. Each revolution in the firecrafting skill produces the visionary surge in selected individuals. In the distant past, those who were predisposed to such receptions operated in this complete defiance of the fire myth. Certain cultures believed fire to be a god, especially those lying to the far north. Fire and soot colored their cultures. But to the true seers, this insurgence of new firecraft stimulated a resurgence of the watery dream myths, growing evidence that the fire was losing power.

In effect, firecraft performed a marvelous work in the human gene pool. It forced to the surface those who were naturally sensitive to the dream reveries, a procession of notables. Capable of performing strange feats through their sensitivity, certain individuals historically graced the halls of art and science throughout time, names which are well known. On close inspection, we may find that every social renaissance, however ancient and little chronicled, will evidence a resurgence of the dream seas.

In our time, deepest consciousness is the ground which has been so terribly assailed and damaged. Consciousness, full and human consciousness, must be personally rediscovered. The discovery rekindles our lives, requiring certain natural energetic stimulations for its personal inception. The reservoir of natural prolific imagery is not nightmarish, not troublesome. It reveals that matter is an extension of ephemeral ideas, from which that matter draws power to exist. Here then is the discovery which explains the differences between ancient visionary science (philosophy) and modern (mechanistic) science.

Because of this schism, this damaging resistance to the continuous flow of preexistent imagery, humanity has reached a new hiatus. While boasting of prolific creativity, in technologies made to be purchased and consumed, people have found themselves reaching a personal stasis from which there is no escape.

But this fire-seared consciousness is not without its adversary. Water drowns fire. Water heals burns. Being so completely opposed, both water and fire will forever be mutually exclusive. The one pushes out the other. But they are never equals. Water, vision, is the superior of the two. Water, vision, is the original foundation. Water is the connective continuity between ourselves and the intelligence of space. The

warfare continues, and will forever continue until water replaces fire. And water will replace fire, because the technology which fire gives is a dead-end.

The humanly relevant archetypes, when sent to direct humanity, are watery. Those which exceed our conscious ability, yet rule our world and our being. We are supposed to live our lives, awash in the consciousness which floods the world. Following its leading, its guiding stream, we may be assured of becoming fully human, and being changed into more capable personalities. Those mythical heroes and heroines, moved by visionary guidance, were the discoverers and inventors of strange ancient technologies. Wonder technologies.

Notice how machines, which merely intimate touching the mind, have gained such dramatic popularity. But technologies which truly address the deepest parts of our being remain strangely absent, virtually eliminated as often as they appear. What then is lacking in modern technology? Why is it absolutely incapable of serving our deep innermost needs? In order to best understand this Machine Age vacuousness, we much appreciate anew those foundations of firecraft on which machines were actually produced. Being the representations and physical embodiments of an artificial consciousness, mechanical contrivances can neither supply us with validations nor amplifications of our deepest being. This thesis stands, simply because the machines did not emerge from the original dream reservoir.

But pushing out again into the consciousness of sensitives, the old imaginal energies began once more to inspire their enthralled participants. Those who recaptured the first dreams and metaphors, were suddenly gifted with a new aesthetic; an ability to discern the difference in quality between water and fire myths. Those who were furious at the change in both myth and reference were often derided, and at rare times exiled. Nevertheless, when fire failed its young worshippers, the fire myths did not spare them. The legends forever repeat the tale of the "rejected elder," whose dream reveries in the old water myths remained intact. How often do we find those important mythic episodes which picture the "return of the exiled elder"? Those, whose visionary guidance saves the imperiled culture from ruin, all too suddenly regains primary role as cultural hierarch. To such are granted the term "Legend." It is the same today.

We have become so accustomed to firecraft, that society without fire is unthinkable. Fire, and the means for procuring fire in all of its forms, has taken primary place throughout the sciences. Fire has shaped our concepts of energy and, because of this focus, our entire worldview. But unlike ourselves, the ancients revered a power more fundamental, more primary than fire. It was because of this singular persistence in a primal theme, that we preserve the memory of several ancient episodes in a remarkable technology having nothing at all to do with firecraft.

#### **METAPHORON TECHNOLOGIA**

As they ever have, the dream seas surge and resurge. They leave their wake on the social mind with every new assault of firecraft. Each conscious renaissance is a defined insurgence against each revolution in firecraft, often confused with the firecraft itself. The ancient rediscovery of its long forgotten abilities triggered a social renaissance among those gifted enough to realize and "believe" its reality. While sensitives gain control of world functions through there rapid learning of metaphoric energy, the message of their achievements eventually emerges as rumors and myths.

Geographic discernment was often deceptive. But for the ancients, metaphors were the references amid the physical world. Those who frequented the ancient sacred centers knew that contact with certain boulders, later altar stones, generated vivid dreams. In time, such awareness led many to seek deeper access to the dream flow by spending devotional time within special caves. It is therein that glowing visionary experiences were collectively shared by groups of devoted seekers. Soon, such sensitives began to notice the opened activity of these energies in the affairs of humanity. The realization enveloped the fact that metaphoric presence was actually manifesting as energetic currents, those very currents through which primal imaginal reveries were more anciently received.

Consciousness is fluidic. Consciousness floods the world, both within and without. It is the fact which requires continual and personal rediscovery. Sensitive souls ever respond to the soothing waves, the surging imaginal reverie which becomes for them impossible to escape. Certain legendary few emerge from each fire-dominating period with a compelling and thrilling message for society. Their songs periodically come forth in all the varieties of human artistic and technological expressions, distinguished in their flowing dreamlike atmosphere. One knows of these persons, the best loved artists and researchers throughout the halls of time.

The continual reception of imaginal discharges is a phenomenon duly noted in the biographies of great creative persons. The ideational exchanges between humans and conscious space collectively produces and maintains true culture. Experiential fact ruled this discernment, recognitions that certain metaphors, certain imaginal presentations, were only found in specific places. Numerous ancient cultures simultaneously discovered these experiential facts.

Gained at the sacred locales, this esoteric science constitutes the "old knowledge" that so many excellent writers have mentioned. These locales became places of learning, the academies and schools of the ancient world, the Athenian Academy of Plato being a great example. Not the result of "channeling" or any other such "renamed" modern forms of mediumship, the knowledge gained from prolonged visits at these and other less renowned sacred sites was written in countless scrolls.

In time, the knowledge surfaced as esoteric science...the "old knowledge." Astromancy, geomancy, alchemy, medicinal herbology, these are but some of the floods of understanding which poured from the sacred locales. The powerful metaphors, rich symbols, and penetrating meanings, which flooded the frequenters of these sites suddenly transformed the very concept of society. Sensitives who had now regrouped around these energetic locales were beginning to learn of a technology which would effectively replace firecraft. After discovering the metaphoric currents themselves, the first step toward the new technology dealt with means by which the currents could be magnified in power and clarity.

Sensitive visionaries reached toward a strange "metaphoric science," one by which currents of metaphoric energy could be identified, secured, magnified, and clarified...a revolution of single primary importance in the history of humanity. Though never recognized or mentioned, this technology was the focus and civilizer of humanity. Ancient sensitives, most whose names will never be known, discovered techniques by which dream currents could be magnified, focussed, even transmitted through the use of special rocks, crystals, and metals. Early humanity thus learned of a technology whose fundamental

nature was cooperation with the environment, a technology which was not born of fire. This was the long-awaited technology which would have precluded firecraft, had the insensitives not grasped so greedily after fire.

In this strange new capacity, several revolutions in earth technology were anciently engaged. Some of our best writers have brought their rediscovery of these facts to us. There are so many writers who have best expressed these topics, describing the progressive development of earth mounds, megaliths, architecture, each a movement toward a new horizon in the technology of elevated consciousness. But this resurgent process of dreams reverie has never ended. The works of a few natural visionaries have continually produced the scientific and artistic "aberrations" which society finds itself embracing with secret deep desire.

## **EMBERS**

Water quenches fire. Fire recedes when water advances. We can expect the battle between water and fire to continue. Firecraft, with its strong present accompaniment of social support, has not historically remained unchallenged. Every surge of firecraft has provoked the dream sea, the resulting metaphor-empowered technology producing bafflements, irreconcilable conflicts, and arguments. Those of us who long for the appearance of the technological dream world manifest several desires simultaneously. One of these desires is the development of technologies whose operative energies derive directly from consciousness itself. If this seems far too much to accept, please note with fascination the continual recapitulation of systems which are primarily derived from dream imagery, and which manage various dynamic degrees directly from their operative source: the dream energy itself. The continual "haunting" of humanity by the appearance of dream-

guided discoveries demonstrates the degree to which the innermost oceans encourage our deepest sensitivities toward reemergence.

The fire-made vacuum not only continues to devour the forest, but it yet devours the mind. Through preoccupation with the flickering devourer, the most sensitive kind of consciousness has been made void for the masses. There is then is a communion which has been severely broken in our Age. It evidences itself as that modern plight, of which numerous truly inspired writers and seekers have been reporting. The "anomie," the world "nausea," the "world sadness." Humanity cannot find rest in the civil technologies which serve endlessly bifurcating utility, while ignoring consciousness itself.

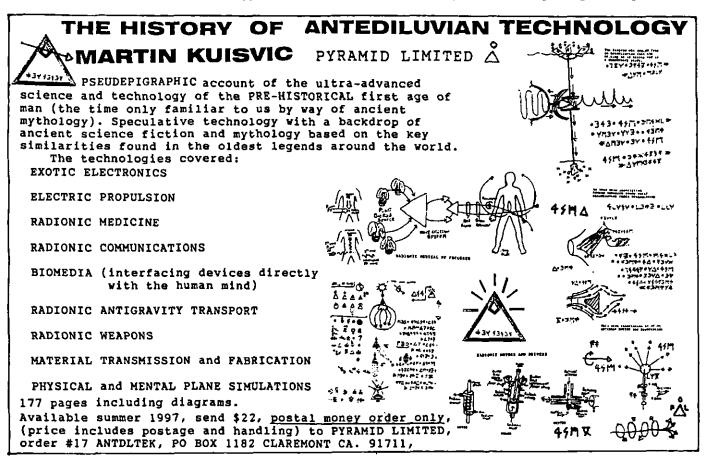
Representing the sensitive dream consciousness is the great host of creative souls, those who move civilization toward noble planets. Expressive exultation defies the encroaching dominion of the Machine Age. The visionary reverie of William Blake closes the book on which faction will succeed. The green sunny glories of an Agrarian Age refuse to wax dark and macabre in the oppressive smoke. The doom which firecrafters fear will come, but will die at the hands of a watery dream. Our final destiny is projected in a description, one set entirely in metaphors and the conscious currents by which metaphoric instruments are empowered. The only fundamental revolutions having lasting effects are those which change human consciousness. Visions, fireless visions will change consciousness. And the instruments which use conscious energy will change the world.

"Bring me my bow of burning gold, bring me my arrows of desire.

Bring me my spear, oh clouds unfold! Bring me my chariot of fire!

I will not cease from mental fight, nor shall my sword sleep in my hand,

Till we have built Jerusalem...in England's green and pleasant land."



# REVIEWS

# by Michael Theroux



# **Books**

# Bringing the War Home by William Thomas 1998 Earthpulse Press.

When we first received this book I was a bit sceptical about its potential technical accuracy and thought it might be just another "cranked out" publishing job to capitalize on people's hysteria as some of the other books from this publisher have left something to be desired. But, not this time.

This is truly a masterpiece of investigative journalism. Author William Thomas (an environmental emergency response worker in the Persian Gulf) brings us a look at the Gulf War and its continuing aftermath from intense, on-the-scene, personal accounts, to the post-war labyrinthine Pentagon cover-ups — by way of intelligent investigative reporting. We are told of the nightime missile attacks, the facts about the chemical and biological agents used (supplied to Iraq by the U.S.), experimental vaccines and chemical agent pills given to U.S. troops (which the latter amplified the effects of sarin nerve gas), and the medical investigations into the mysterious Gulf War Syndrome with possible solutions on how this multifaceted illness might be treated. The book is at once a history of the Gulf War, an investigation into the myriad cover-ups by the U.S. Government, and simply one of the best accounts of what really happened in the Persian Gulf. Scary, but a must read.



# Radios that Work for Free by K. E. Edwards

1977 Hope and Allen.

Although this book has been around for some time, I thought it needed the attention of a review. The world of radio is a fascinating one and with the information in this book, anyone, and I mean anyone, can build a simple radio receiver that requires no power. You don't have to be an electronics technician to understand and build the radios outlined in this book. Several types are discussed — from the simple to the more

advanced. What is really great about the crystal radio is that in its simplicity it opens one up to an array of endless experiments. The design of most crystal sets incorporates the need for high impedance headphones in order to hear the radio. While the headphones are inexpensive and relatively easy to come by, the book details how to construct a loudspeaker for normal listening — remember, without power.

Experiments with different materials and configurations of detectors are also covered, along with the construction of coils, easy layouts, and all the tools and parts required. A great experimenters book!

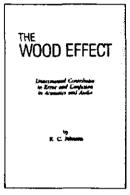
## The Wood Effect

Unaccounted Contributor to Error and Confusion in Acoustics and Audio

by R. C. Johnsen

1988 Harvard University.

"The wicked Reign of Quantity demands immediate overthrow." — from page 47 of the Wood Effect by R.C. Johnsen. Many of our readers have probably seen the likeness of this statement often within our own pages. The great thing about highend audio is that it is a purely qualitative science. True audiophiles know that the only instrument capable of determining how good an audio system performs is the human ear. No amount of test equipment revealing reams of specifications will ever replace the ear as the true judge of sound



quality. So what is the Wood Effect? It is a phenomenon named after its informal discoverer, Charles Wood, who in 1957 found that sounds possessed a distinctly different timbre when the polarity of the output wires to the speaker were reversed. In recording, when a sound is originally presented to the microphone as a compression, any reversal of electrical polarity through the amplification stages will produce a rarefaction. If the polarity is reversed in the final output at the speaker, the sound will be wrong! Only Absolute Polarity is correct — meaning that what goes in positive should come out positive. Even the great acoustic theoretician Helmholtz erroneously denied the existence of this monaural phase effect.

So, what does the quantitative audio industry say about this? "Nonsense...it just doesn't exist"...or... "the ear cannot tell the difference." When I first started reading Mr. Johnsens's book it immediately struck a chord with me, for as a young audiophile tinkering with my component stereo, I noticed that some albums just didn't sound right. I intuitively just started switching the speaker leads around and discovered that some albums sounded better one way, and some the other, or reversed way. Little did I know that this was what Absolute Polarity was all about. No overpaid industry CEO or credentialed audio engineer is going to tell me that my ear cannot tell the difference! In The Wood Effect, Mr. Johnsen reveals the audio industry's total lack of concern and outright cover-up of Absolute Polarity. He begins by detailing the history of audio recording techniques starting with purely acoustic recordings, to the inception of electronic recordings in 1923, and on to the falsified sound of the digital age today. History reveals

that the audio industry's obsession with the almighty dollar was and still is far more important to them than giving the consumer a correct and truly faithful recording. Johnsen clearly points out that the industry has dictated what the audiophile will hear, trying to convince them that what they are getting is the best there is to offer. There is actually a conspiracy here! Even the well known audio magazines would have you believe the phenomenon doesn't exist, and foolhardily review stereo components from amplifiers to speakers without the slightest concern for polarity integrity. This means that their reviews are faulty from the start.

Mr. Johnsen's book includes an exhaustive sampling of published material on the subject, and is packed with experimental evidence. It is also an extremely enjoyable read, and ranks up there with the best in qualitative science literature. No serious Borderland library should be without it.

# Research Tools

## **FM Reflect Antenna**

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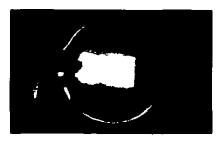
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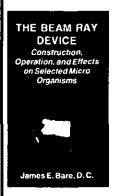


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# The Pundit Curmudgeon

"Oligodynamic" — An Almost Forgotten Word ©1998 E.D. O'Brian

OR a few months the word
"oligodynamic" has
periodically plagued my
thoughts relative to this column. It has
utilities not possessed by any other English word. This is easily illustrated by

referring to Peter Lindemann's good, "solid", article "Colloidal Silver: A Closer Look" (Borderlands, Vol. LIII, No.2, Second Quarter 1997, p. 21). If he had known of the word "oligodynamic" when he prepared this article he would have used this expression in it since the silver colloidal treatments he describes are obviously oligodynamic in character. By using this expression he would have more or less automatically related the specific uses of silver he discussed to prior related applications of silver and other metals. Some of the latter are beyond the jurisdiction of the FDA.

Since Mr.Lindemann apparently didn't know of the word "oligodynamic" when he wrote his article, it is a safe bet that at least 99% percent of Borderlands' readers have never heard of this expression. There is nothing surprising about this. For many years it has been the practice of those establishing what is and is not socially accepted technology, more or less to ignore or deliberately overlook this innocent word. Such conduct is in accordance with the established practice in socially accepted science and religion of ignoring what cannot be at least partially explained in terms tolerated by established authorities in these fields, unless the subject matter involved is so important that it cannot be ignored.

"Oligodynamic" as a separate term has no such vital importance. It has been passed over and almost forgotten, in spite of the fact that it has all of the characteristics of a completely good word. A consequence of the non use of "oligodynamic" or some equivalent is the suggestion that nothing would be gained by such conduct. The result being that knowledge from specific oligodynamic applications has seemingly not been exported from one field or application to another.

The two obvious parts of "oligodynamic" indicate a Greek derivation, roughly indicating a small activity or force. Long ago, to those few who seem to accept the existence of "oligodynamic" as a separate word, the term developed a more restrictive, essentially undefined meaning. As is so common in connection with many older technical terms — particularly mechanical terms straining the delightful, indefinite flexibility of much of English — there is apparently no established agreement as to the scope of this restricted meaning. The different manners in which it is defined and ignored in various dictionaries illustrate these points.

The venerable, highly authoritative, voluminous, and nearly unabridged Oxford English Dictionary, 1971 Compact Edition, doesn't acknowledge the existence of "oligodynamic" as a word; nor does The

Random House Dictionary of the English Language, Second Edition. According to the time tested workhorse of the field of chemistry, Hackh's Chemical Dictionary by Grant, the word means:

- (1) Small but powerful.
- (2) Describing the inhabitation of fermentation or growth of bacteria by metals, e.g., iron containers

The compact, clearly abridged, 1971 edition of the Oxford English Dictionary significantly differs by indicating that the word designates "produced by small forces."

Neither of the quoted definitions of "oligodynamic" indicate a meaning corresponding to the manner in which it is used in the limited technical literature in which it appears. I learned of the word as a young patent examiner, when more senior examiners in Class 204, who handled odd ball cases involving "unusual" forms of energy, informed me that the word indicated the use of the mere presence of a "noble" metal, such as gold or silver, to kill bacteria. These individuals indicated that they believed that such metals were at least somewhat effective for this purpose although no one appeared to know why this was the case. Since this introduction to the term, I have also occasionally seen it used to designate the use of such metals to control the growth of algae and viruses.

There are interesting historical applications in which such precious metals clearly have been and, to a limited extent, still are used to control these three types of growths. For example, for centuries some Hindus have served cookies (aka biscuits to those taking a traditional view of English) covered with a thin layer of gold foil. Also upper class Hindus have customarily served food on gold and sliver plates, while those unable to afford such utensils have used other types of metal plates. It is interesting to note that such plates were used as soon after being washed as reasonably possible, preferably when drops of the wash water were present on the plates.

On several occasions I have discussed these practices with Hindu friends. During these conversations I have been assured and reassured that these practices have long been considered as effective in decreasing the health hazard encountered in consuming possibly impure foods and in promoting general good health. This is essentially a rephrasing of the description of current practice as set forth in Mr. Lindemann's article. Although it does not contain a detailed discussion on the current uses of colloidal silver, it is apparent that the colloidal silver he wrote about was intended to be used for the same general purposes as the traditional Hindu practices.

This does not detract from the fact that each specific use or application of a metal for this purpose is inherently different from each other use or application in at least one way. All such applications seek to accomplish essentially the same or similar objectives, involving the control of the growth of microorganisms by mechanisms relying on

characteristics inherent to the metal. The expression "oligodynamic" may be and has been used in a variety of ways to designate or describe such control.

Apparently no one knows the time period when mankind made the initial use of what are referred to herein as "oligodynamic properties" or the subsequent invention of the word "oligodynamic". Probably nothing would be gained by researching either of these matters. From the extensive use of lead in Roman eating and drinking vessels, and from the current knowledge that this metal is more than detrimental to virtually any kind of growth, it appears a virtual certainty that the oligodynamic properties of then known metals were known long before the so called "Christian era". From the tendency of emerging technology to invent words by combining words or prefixes and suffixes from Greek during the period of roughly 1800 to 1900, it is a good guess that the word "oligodynamic" is far from being relatively new and is probably nearly two centuries old.

As a consequence of this, it can be argued that the metals coming within the scope of this term are only those which were known when the expression was first adopted — the early 1800's. The only well known metals during this period are indicated in the first edition of the Encyclopedia Britannica, published as separate volumes during the 1790's. It lists (p. 78) the only then known metals as "the perfect metals ... gold and silver; the others are copper, tin, lead, and iron," but states that some chemists admit the existence of a metal identified as "quick-silver" — now known as mercury.

As a consequence of the probable purity of metals as produced in about 1800, unquestionably at least some alloys of these metals must have the same oligodynamic characteristics now attributed to the relatively "pure" metals. From a consideration of this definition, it would be possible to take the view that an unreacted metal surface is required to achieve oligodynamic growth control. A view of this type is easily proven incorrect by looking up both silver and silver compounds which are useful to accomplish the same or similar objectives in a standard text such as Merck's Index. A comparison of the metal and such compounds establishes the approximate or rough equivalency of an oligodynamic metal and its compounds in controlling the growth of microorganisms.

In using this reference book for making such a comparison, it should be remembered that the content of the book was not compiled in an effort to show which compounds have oligodynamic properties, or in an effort to enumerate all of the properties and uses of all compounds of a metal. Under no circumstances is a book such as the highly authoritative Merck's Index to be taken as gospel on subject matters it was not intended to directly cover, or as a collection of all known information on the uses and toxicity of metals and their compounds.

The tenth edition of this reference confirms that silver has been employed to control the growth of microorganisms by indicating that silver has been used "... for purification of drinking water because of toxicity to bacteria and lower forms of life." The same text refers to silver compounds such as silver bromide, citrate, fluoride, iodide, lactate, and nitrate as also being "anti-infective". Still other silver compounds identified in this reference work have been described in different words suggesting the same generalized meaning. For example, silver oxide is described as a "... catalyst for the purification of drinking water..." that "...has been used as germicide and parasiticide."

The fact that a metal or compound of a metal may be used for a nonoligodynamic purpose is usually unrelated to the fundamental

oligodynamic character of the metal or compound. Nearly every one will concede this after considering that silver compounds or minute silver metal derivatives of such compounds are the basis of the entire field of traditional photography. No one cares that silver is probably an effective anti-infective when present in any form in a photographic emulsion. It is used in such emulsions because of its well known light sensitive properties.

A similar discussion to the preceding can be centered about any of the noble metals designated as having oligodynamic properties. As previously noted some individuals have taken the view that the only oligodynamic metals are these so-called "noble metals". This is erroneous. The previously discussed Hackh's dictionary specifies that a noble metal, such as is often considered to be required in order to achieve an oligodynamic effect, is "a metal that is not readily oxidized; as the gold, platinum, and palladium family of the periodic system."

Because this definition does not indicate when a metal is or is not "readily oxidized" it is restricted to only those elements which it specifically identifies. It is also objectionable since it excludes iron—a metal which it specifies has oligodynamic properties.

By most standards iron is easily oxidized. This precludes it from being oligodynamic according to the Hackh's definition of a noble metal. Because iron is a rather vital aspect of an iron container (recited as an illustration of when an oligodynamic effect can be achieved), it is apparent that there is a divergence of authority as to what metals are oligodynamic. Copper, a metal commonly used to control microorganisms, would not be considered to be oligodynamic by this easily oxidized definition.

An obvious but somewhat less than satisfactory manner of resolving this problem of defining what metals will produce an oligodynamic effect, is simplified by stating that a metal is required which can be used to restrict the growth of microorganisms — specifically bacteria, algae, and viruses. Whether or not a metal falls within this definition can be determined by simple experimentation. As nearly as is known no one has ever attempted to tabulate a list of such metals. Any effort to provide such a list would undoubtedly bog down because of those metals effective in dealing with one microorganism, but not another.

An occasionally debated point of interest is whether any oligodynamic metal should be soluble to some degree in a fluid such as water. According to older standards as to what constitutes solubility, the answer is apparently a resounding no, but this is probably not the case. The apparent contradiction is related to the fact that some of the metals are so unaffected by common water as to appear to be insoluble, even if they might not be completely insoluble in accordance with new, emerging manners of analysis. To a degree this is related to the role of the exposure of a oligodynamic metal in microorganism control.

The effectiveness of an oligodynamic composition appears to require an available or exposed surface area of a metal, alloy, or compound which can be directly or indirectly effective in controlling the growth of microorganisms. In general the greater the exposed surface area, the greater the degree of growth regulation achieved. To maximize such regulation the ratio of apparent surface area to actual surface area should be as high as reasonably possible. This corresponds to use of electrolytic capacitors having etch ratios in which the ratio between these same areas is as great as possible.

Another way of getting as much control from a given quantity of an oligodynamic metal is to use colloidal suspensions, as discussed in Mr. Lindemann's article. The smaller the particles in such a dispersion, the

greater the exposed metal apparent surface area per unit by weight of the metal. The same remains true when such particles are replaced by ions or clusters of ions not quite small enough to be colloidal in character. It is possible to regard complexes associated with the latter as essentially delivery agents facilitating the placement of the nucleus of the metal ion where it can be most effective in achieving a desired

A limiting factor in the use of ions or colloidal particles of an oligodynamic metal is the possibility that any particular metal may be active or reactive in other than an intended oligodynamic manner. This is particularly significant in connection with chelation therapy, in which EDTA is used to facilitate the removal from the body of ions known to interfere with the normal operation of the body. Similarly, only colloids known to be more beneficial than detrimental to a living body should be used in the usual circumstance. The possibility of undesired consequences occurring along with olgiodyanamic action is of lesser significance in non-medical uses than in connection with medical applications.

The dental field illustrates this type of problem involving "side" complications. One cannot help but wonder if the practice of using gold and silver fillings in human dentistry may originally have started as a result of the recognition of the ability of these metals to control bacterial and other growths. Regardless of its origin, this practice is well recognized to lead to such undesirable consequences as occasional mercury poisoning as a result of the use of an amalgams to fill teeth. The extent of the relative hazard from this common usage is the subject of significant debate.

It would be more interesting to compare the presence of bacteria in the mouths of individuals encumbered with silver, gold, and more modern essentially ceramic type fillings. Do those carrying these ceramic fillings have less need for forms or dental hygiene than those using traditional metal fillings? Do individuals carrying a lot of gold in their mouths have less objectionable breaths than those who don't? Do silver colloids serve as effective mouth washes? Is dental hygiene improved by the use of metal implants, various wires in bridges and braces and the like?

Seemingly it is impossible to avoid speculating about the reasons for other traditional uses of gold and silver, and even the current use of stainless steel to quell hand odors. One human use of silver is so unexpected that it should be mentioned even though it involves a normally not discussed topic — the use of so called "Ben-Wa" balls in the vagina. Apparently the antecedents of such items were silver shells or balls surrounding brass balls. Were such balls originally used to combat vaginal infections? Probably, they should be effective for this purpose.

There is more than adequate reason to believe that these and other silver articles are effective as contraceptives when used in such a way as to come into contact with the fluids associated with reproduction.



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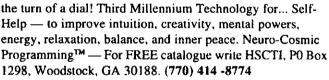
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When one recognizes known applications of oligodynamic phenomena it is easy to extend such speculation. Probably an oligodynamic metal is most effective in treating humans when located within the body in contact with body fluids capable of carrying objectionable bacteria and viruses. Although in a broad sense such fluids include those found in the mouth and digestive tract, it is obvious that they include blood and lymphatic liquids.

There is then reason for placing an elongated member of silver or other oligodynamic metal in a blood vessel, where the blood will normally circulate past it, when there is reason to think a person is suffering from a blood infection. Shouldn't this be a part of the solution to the problem of the increasing resistance of bacteria to antibiotics? Probably the lack of horrendous drug company spending will be the end of thoughts of any such oligodynamic treatments. No one can be expected to incur such costs, because no significant money is to be made off of anything as simple as a body of metal formed and suspended in a blood vessel.

Arguments of this type are not justification for recognizing the oligodynamic phenomena for what it is, or for stopping either established folk practices or their modern extensions. It may turn out that the current widespread use of silver and gold jewelry is based on a primitive type of medicine, and that minor updates of such practices will be beneficial in medicine and other industrial fields involving the action of microorganisms.

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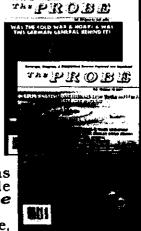
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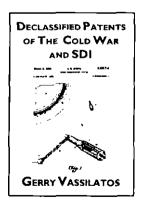
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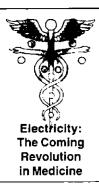


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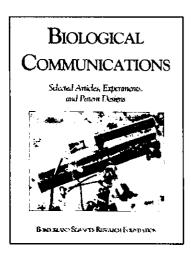
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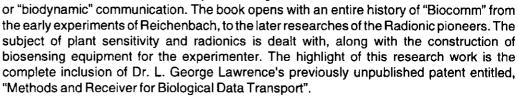
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